

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M4202224	1.3	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA126**

EC928425	81-02-06
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**Purpose**

This ECA is released for World Trade Use only.

**ECA127**

EC840880	81-02-20 REV. 81-10-30
MANDATORY	SERVICE CODE 33
AVAILABLE	81-03
AUTOSHIPPED FROM	ROCHESTER
Obsolete 84-03-05	

**Purpose**

Adds additional blank diskettes and labels to service library for use in MES and Periodic updates.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	E/M2548802 B/M2548802 and B/M4223259	Basic - Service Lib Basic - Service Lib and 3370 Feature	B/M8328557 B/M8328537
		S/38 prior to S/N 21187	

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M8328557	0.5	0.0
B/M8328537	0.5	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA128**

EC839532  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

**SAFETY**

81-02-20|REV. 81-10-30  
SERVICE CODE 33  
81-03  
ROCHESTER

**Purpose**

This FB/M provides instructions to remove diodes from the remote feature relay board which could cause the 3203 to start unexpectedly.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be installed
All	B/M2548733	Power Exp Prereq 1	B/M4202233
		S/38 prior to S/N 21130	

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M4202233	0.8	0.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

## Detail

This FBM will be automatically shipped to any 5381 adding the 3203 feature by MES.

ECA112

EC839201  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
81-03-06|REV. 81-10-30  
SERVICE CODE 33  
81-03  
ROCHESTER

## Purpose

Periodic 8 MLM update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923 B/M2548962 B/M4223259 B/M2548705 B/M2548927	Basic Communication Adapter 3370 Adapter 3410/3411 Adapter 5424 Adapter	B/M4202222 B/M8328711 B/M8328712 B/M8328713 B/M8328714
		S/38 prior to S/N 21228	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4202222	2.0	0.0
B/M8328711	0.5	0.0
B/M8328712	0.5	0.0
B/M8328713	0.5	0.0
B/M8328714	0.5	0.0

## Prerequisites

ECA112, EC839200

## Companion

ECA130, EC837983

## Concurrent

None

ECA130

EC837983  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
81-03-06|REV. 81-10-30  
SERVICE CODE 33  
81-03  
ROCHESTER

## Purpose

Periodic 8 microcode update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774 B/M2548774	Basic W/EC837925** Basic WO/EC837925** ** EC Level of Planar Board  FBM 4202230 considers that the Planar may have been replaced.	B/M8328615 B/M4202230
901	B/M4224571 B/M4225386 B/M4224319	BC Documentation WTC Support Grp 1 WTC Support Grp 2  S/38 prior to S/N 21228	B/M8328619 B/M8328617 B/M8328618

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328615	2.3	2.0
B/M4202230	2.3	2.0
B/M8328619	0.0	0.0
B/M8328617	0.0	0.0
B/M8328618	0.0	0.0

## Prerequisites

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M8328615	ECA085 ECA105	EC837988 EC839395	
B/M4202230	ECA111 ECA116 ECA117 ECA122 ECA127 ECA128	EC837981 EC840917 EC840998 EC839517 EC840850 EC839532	

**Companion**

ECA129, EC839201

**Concurrent**

None

**ECA131**
 EC841063  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM

 81-05-01  
 SERVICE CODE 33  
 81-04  
 ROCHESTER
**Purpose**

Update 5424.

Instructions only to correct MCR.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548928	5424 Attachment	B/M4202362
		S/33 with S/N21033 21046, 21072, 21073 21078, 21080, 21082 21103, 21106, 21145	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4202362	0.8	0.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA132**
 EC841048  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM

Obsolete 84.03.05

 81-05-01  
 SERVICE CODE 33  
 81-04  
 ROCHESTER
**Purpose**

Update Frame 02.

Provides mounting holes and hardware for future expansion.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548837	Frame 02	B/M8328200

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328200	2.0	2.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA133**
 EC841011  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM

Obsolete 84.03.05

 81-05-01/REV. 81-10-30  
 SERVICE CODE 33  
 81-04  
 ROCHESTER
**Purpose**

Update microcode.

Provides instructions to update the MCR on machines with HEBREW or TURKISH table.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4224717 B/M4224718	Hebrew Arabic	B/M4202411 B/M4202422
		S/38 prior to S/N21300	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4202411	0.8	0.5
B/M4202422	0.8	0.5

## Prerequisites

None

## Companion

None

## Concurrent

None

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

This FBM provides parts and instructions to increase the current capacity of the -4.25 volt power supply from 28A to 32A. This FBM will automatically ship when required with an MES order only.

**ECA135**

EC841070  
AS REQUIRED  
AVAILABLE  
ORDER FROM

81-05-29|REV. 81-10-30  
SERVICE CODE 33  
81-07  
ROCHESTER

Obsolete 86-06-16

## Purpose

Ground clip for 72MD cover. This FB/M provides a ground clip to eliminate Radio Frequency Interference.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548895	72MD Attachment	B/M4202384
		S/38 prior to S/N22097	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4202384	0.5	0.5

## Prerequisites

None

## Companion

None

**ECA134**

EC840940  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

81-05-29|REV. 81-10-30  
SERVICE CODE 33  
81-08  
ROCHESTER

## Purpose

Power supply modification.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548882	Power, Stage 2	B/M4380684
		S/38 prior to S/N21882	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4380684	1.0	0.8

90-08-19

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**Concurrent**

None



EC837828  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

81-08-07  
SERVICE CODE 33  
81-12  
ROCHESTER

**Purpose**

Power supply modification.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548748 B/M2548815 B/M2548883 B/M2548923	60 Hz Power 50 Hz Power Power base, Stage 2 Base MLM  S/38 prior to S/N20205	B/M4202412 B/M4202413  -----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4202412	2.2	2.0
B/M4202413	2.2	2.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This FBM provides parts and instructions to update early level power supplies for optional features. 837838 was originally "FACTORY ONLY" but was changed to "FACTORY/FIELD". This FBM will ship automatically when required with an MES order only.

ECA137

EC839437  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

81-08-07  
SERVICE CODE 33  
81-05  
ROCHESTER

**Purpose**

Power supply modification.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774 B/M2548883	Final Asm, elec Power base, Stage 2  S/38 prior to S/N21349	B/M4202300  -----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4202300	1.0	0.7

**Prerequisites**

ECA138, EC837828

**Companion**

None

**Concurrent**

None

**Detail**

Install R/C assembly #4 as a pre-requisite for optional features. This FBM will be shipped automatically when required with an MES order only.

ECA138

EC840889  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

81-08-07/REV. 82-05-05  
SERVICE CODE 33  
81-08  
ROCHESTER

Obsolete 86-06-16

## Purpose

Installs an 01BC1 Regulator Board with increased capacity for special features added by MES.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
	B/M2548744 B/M2548883	Final Asm, Elec. Power base, Stage 2	B/M4202391
		S/38 prior to S/N21379	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4202391	1.0	0.7

## Prerequisites

ECA137, EC839437

## Companion

None

## Concurrent

None

## Detail

This FBM will be shipped automatically when required with an MES order only.

### ECA139

EC840839  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 81-08-07

81-08-07/REV. 81-10-30  
SERVICE CODE 33  
81-08  
ROCHESTER

## Purpose

Power supply modification.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548748 B/M2548815 B/M2548883	60 Hz Power 50 Hz Power Power base, Stage 2	B/M4360882 B/M4360883
		S/38 prior to S/N22006	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4360882	3.1	2.6
B/M4360883	3.1	2.6

## Prerequisites

ECA138, EC840889

## Companion

None

## Concurrent

None

## Detail

This FBM provides a replacement T-1 transformer for machine power supplies and is required for optional feature installations. This FBM will be supplied automatically when required with an MES order only.

### ECA140

EC841127  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 81-08-07

81-08-07  
SERVICE CODE 33  
81-07  
ROCHESTER

## Purpose

Microcode Update.

This FB/M corrects WT monospace characters that are invalid for certain special characters.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4224716 B/M4224717	Arabic Hebrew	B/M4380741 B/M4380742
-----	-----	S/38 prior to S/N21885	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4380741	0.8	0.5
B/M4380742	0.8	0.5

**Prerequisites**

ECA133, EC841011

**Companion**

None

**Concurrent**

None

**ECA141**

 EC839202  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 84-03-05

 81-03-07/REV. 81-10-30  
 SERVICE CODE 33  
 81-09  
 ROCHESTER

**Purpose**

MLM Update.

This FB/M provides updated documentation for the 3370 feature.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4223259	3370 MLM	B/M4380745
-----	-----	S/39 with S/Ns prior to 22139	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4380745	0.3	0.0

**Prerequisites**

ECA129, EC839201

**Companion**

None

**Concurrent**

None

**ECA142**

 EC841018  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

 81-08-07/REV. 81-10-30  
 SERVICE CODE 33  
 81-08  
 ROCHESTER

**Purpose**

Power supply modification.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548882	Power base, Stage 2	B/M4380721
-----	-----	S/38 prior to S/N22400	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4380721	0.6	0.3

**Prerequisites**

ECA139, EC840939

**Companion**

None

**Concurrent**

None

## Detail

This FBM provides parts and instructions to improve power supply cooling air flow and is required for certain optional features. This FBM will be shipped automatically when required with an MES order only.

EC837984

MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

81-08-07/REV. 81-10-30  
SERVICE CODE 33  
81-09  
ROCHESTER

## Purpose

Microcode update for optional features.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924 B/M4223260	Base Microcode 3370 Diag group	B/M4360688
901		BO Documentation E/ME/A Support 1 E/ME/A Support 2	B/M4360692 B/M4360690 B/M4360691
		S/38 prior to S/N22139	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4360688	0.8	0.5
B/M4360692	0.0	0.0
B/M4360690	0.0	0.0
B/M4360691	0.0	0.0

## Prerequisites

ECA130, EC837983

## Companion

None

## Concurrent

None

## Detail

This FBM will be shipped automatically when required with an MES order only.

ECA113

EC841149  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

81-12-23  
SERVICE CODE 33  
82-01  
ROCHESTER

## Purpose

ESD Tolerance Improvement.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548857	3203 Attachment S/38 prior to S/N23500	B/M4360724

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4360724	1.7	1.5

## Prerequisites

None

## Companion

To Install B/M	ECA Required	Machine Type	Comments
B/M4360724	ECA113	3203	EC756039

## Concurrent

None

## Detail

This FBM provides an improved interface cable connector for the System/38 3203 attachment.



**ECA115**

EC840888  
 MANDATORY  
 AVAILABLE  
 AUTO SHIPPED FROM  
 81-12-23  
 SERVICE CODE 33  
 81-12  
 ROCHESTER

**Purpose**

Periodic 9 MLM update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923 B/M2548962 B/M2548705 B/M4223259 B/M2548933 B/M2548748 B/M2548815 B/M4224848 B/M4224847 B/M4224897	Basic MLM Communications 3410/11 3370 3203 60 Hz Power 50 Hz Power Model 5B Model 4/5A Model 3	B/M4202480 B/M4360754 B/M4360735 B/M4360738 B/M4361003 B/M4361024 B/M4361025 B/M4361028 B/M4361027 B/M4361027
5B 4/5A 3		S/38 prior to S/N22996	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4202480	1.5	0.0
B/M4360754	0.2	0.0
B/M4360735	0.2	0.0
B/M4360738	0.3	0.0
B/M4361003	0.2	0.0
B/M4361024	0.2	0.0
B/M4361025	0.2	0.0
B/M4361028	0.2	0.0
B/M4361027	0.2	0.0
B/M4361027	0.2	0.0

**Prerequisites**

ECA129, EC838201

**Companion**

ECA147, EC837988

**Concurrent**

None

**ECA116**

EC841087  
 MANDATORY  
 AVAILABLE  
 AUTO SHIPPED FROM  
 84-04-30/REV. 85-04-24  
 SERVICE CODE 33  
 82-01  
 ROCHESTER

**Purpose**

Update SCA card.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548847 or B/M2772640 or B/M4224720 or B/M2772672	Power Warning Feature Model 6 Model 7/8 Model A/C Planar	B/M4360830
6 7/8 A/C		S/38 prior to S/N23577	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4360830	1.0	0.8

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

FB/M4360830 will ship only when required by MES/RPQ.

**ECA147**

EC837988  
 MANDATORY  
 AVAILABLE  
 AUTO SHIPPED FROM  
 81-12-23  
 SERVICE CODE 33  
 81-12  
 ROCHESTER

Obsolete Replaced By ECA155 84-04-16

## Purpose

Periodic 9 microcode update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All 967 901	B/M2548774	Basic Branch Office Diskette Branch Office Documentation	B/M4202476 B/M4360820 B/M4202476
		S/38 prior to S/N22996	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4202476	4.0	3.7
B/M4360820	0.0	0.0
B/M4202476	0.0	0.0

## Prerequisites

ECA130, EC837983

## Companion

ECA145, EC840988

## Concurrent

None

## ECA148

EC841236 MANDATORY AVAILABLE AUTOSHIPPED FROM  
 82-01-22 SERVICE CODE 33 82-01 ROCHESTER  
 Obsolete Replaced By ECAs 173, 173 84 04 16

## Purpose

Install 2nd 62PC adapter card and documentation.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4224699	2nd 62PC Adapter 2nd 62PC Adapter Via MES	B/M4361147 B/M4361157

90-06-13

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		S/38 prior to S/N23129	
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## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4361147	1.0	0.8
B/M4361157	1.0	0.8

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

This FBM reduces the possibility of undetected channeldata over runs on systems with the 2nd 62PC adapter.

When installing the 2nd 62PC adapter by MES, this FB/M will be shipped automatically, if required.

## ECA149

EC841247 MANDATORY AVAILABLE AUTOSHIPPED FROM  
 82-01-22 SERVICE CODE 33 82-01 ROCHESTER  
 Obsolete 84 03 05

## Purpose

Microcode Update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202070 B/M2548712	VMC Microcode 62PC Diagnostics ASR Diskette WTC VMC Microcode WTC	B/M4361302 B/M4361287 B/M4361295
		S/38 prior to S/N23425	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4361302	0.8	0.5
B/M4361287	0.0	0.0
B/M4361295	0.0	0.0

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M4361302	ECA147*	EC837986	* See Notes

**Companion**

None

**Concurrent**

None

**Detail**

1. Install changes to diagnostic pump utility and error log facility.
2. Provide replacement ASR (Auxiliary Save/Restore) diskette for customer use.

**Notes**

\* This FB/M may be installed concurrently with ECA147.

**ECA150**

EC841257  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 82-03-05

82-03-10  
SERVICE CODE 33  
82-02  
ROCHESTER

**Purpose**

Replace certain factory built Periodic 8 SLVs.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode	B/M4361322

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4361322	0.7	0.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Replace SLV on 5381s listed below:

22786, 22941, 22984, 23020, 23022, 23046, 23067, 23077,  
23137, 23140, 23160, 23183, 23187, 23220, 23236, 23237,  
23238, 23242, 23245, 23274, 23278, 23293.

**ECA151**

EC841262  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 82-03-05

82-03-10  
SERVICE CODE 33  
82-02  
ROCHESTER

**Purpose**

Correct 0818 machine check problem during directory recovery after extending free space directory.

Replaces Patch Number 4.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
	B/M4202070	VMC Microcode S/38 prior to S/N23528	B/M4361129

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4361129	1.1	0.8

## Prerequisites

ECA147, EC837988

## Companion

None

## Concurrent

None

## ECA152

EC841288  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
08-01-82 08-06-16

82-05-05  
SERVICE CODE 33  
81-12-15  
ROCHESTER

## Purpose

Installs R/C Assembly No. 2 with increased capacity for special features added by MES.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548883	Power base, Stage 2	B/M4361346

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4361346	0.7	0.5

## Prerequisites

ECA137, EC839437

## Companion

None

## Concurrent

None

## Detail

This FBM will be shipped automatically when required with an MES order only

## ECA153

EC840831  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

82-05-05  
SERVICE CODE 33  
82-06  
ROCHESTER

## Purpose

Periodic 10 MLM update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923 B/M2548982 B/M4223259 B/M2548705 B/M2548932 B/M2548815 B/M2548746	Basic MLM Communications 3370 Attachment 3410/11 Attachment 3262/5211 Attachment 50 Hz Power 60 Hz Power	B/M4361284 B/M4361285 B/M4361286 B/M4361287 B/M4361288 B/M4361289 B/M4361270
5B 3/4/5A	B/M4224648 B/M2548923	Model 5B, Model 3, 4 or 5A  S/36 prior to S/N24045	B/M4361376 B/M4361377

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4361284	1.5	0.0
B/M4361285	0.2	0.0
B/M4361286	0.2	0.0
B/M4361287	0.2	0.0
B/M4361288	0.2	0.0
B/M4361289	0.2	0.0
B/M4361270	0.2	0.0
B/M4361376	0.2	0.0
B/M4361377	0.2	0.0

## Prerequisites

ECA145, EC840988  
ECA148, EC841236

## Companion

ECA155, EC837989

## Concurrent

None

**EC841228**

 EC841228  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM

 82-08-18/REV. 85-04-24  
 SERVICE CODE 33  
 82-10  
 ROCHESTER

### Purpose

Replace Board 01A B2.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548846	Board 01A B2	B/M4381437
		S/38 prior to S/N24748	

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4381437	2.0	1.8

### Prerequisites

ECA057, EC837837

### Companion

None

### Concurrent

None

### Detail

This FB/M provides a new 01A B2 Board for feature upgrades.

This FB/M will be shipped automatically when required with an MES order only.

**ECA155**

 EC837989  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM

 82-08-18  
 SERVICE CODE 33  
 82-08  
 ROCHESTER

Obsolete Replaced By ECA163 84-03-05

### Purpose

Periodic 10 Microcode update.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode (English) (French) (Spanish) (Japanese) (French/Canadian)	B/M4361077 B/M4360932 B/M4360933 B/M4360934 B/M4360935
987		BO Diskettes	B/M4361079
		S/38 prior to S/N24045	

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4361077	2.0	1.7
B/M4360932	2.0	1.7
B/M4360933	2.0	1.7
B/M4360934	2.0	1.7
B/M4360935	2.0	1.7
B/M4361079	0.0	0.0

### Prerequisites

ECA147, EC837986

### Companion

ECA153, EC840991

### Concurrent

None

### Detail

This ECA provides microcode to:

- Support Model 7 Machines
- Improve BSC
- Improve MRJE
- Improve Comm Trap
- Improve Pump
- Modify Link Load for Handling Double Defects
- Improve Storage Management

## ECA156

EC841251  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

82-08-16/REV. 82-09-08  
SERVICE CODE 33  
82-09  
ROCHESTER

### Purpose

This FBM provides an improved SDLC card.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3,4,5	B/M2548861	Comm SDLC Adapt SS1	B/M2771062
3,4,5	B/M2551018	Comm SDLC Adapt SS2	B/M2771065
		S/38 with S/N20453, 20988, 21061, 21175, 21440, 21544, 22662	

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771062	1.0	0.8
B/M2771065	0.2	0.1

### Prerequisites

ECA095, EC839186

### Companion

None

### Concurrent

None

### Detail

This card prevents the communication line from hanging in a loop when certain modem types are used on a line which has a temporary loss of carrier. The system cannot recover unless line and controller are varied off.

## ECA157

EC841243  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 82-09-08

82-08-16  
SERVICE CODE 33  
82-08  
ROCHESTER

90-08-19  
S230-9059-01 © Copyright IBM Corp. 1979, 1990

### Purpose

Replace Board 01A-A1.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Board 01A A1	B/M4361062
		S/38 prior to S/N25771	

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4361062	2.0	1.8

### Prerequisites

ECA146, EC841087

### Companion

None

### Concurrent

None

### Detail

This FB/M provides a new 01A A1 Board for feature upgrades.

This FB/M will be shipped automatically when required with an MES order only.

## ECA158

EC841362  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced by ECA163 84-03-05

82-08-30  
SERVICE CODE 01  
82-08  
ROCHESTER

### Purpose

Provides Code A inventory diskette to AFE and E/ME/A replacement centers.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
989		AFE or E/ME/A	B/M2771148

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771148	0.0	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides a library copy of Periodic 10 (ECA155, EC837889) microcode for emergency rebuild of SLV. AFE and E/ME/A only.

**ECA159**

EC841255 82-08-11  
 AS REQUIRED SERVICE CODE 33  
 AVAILABLE 82-11  
 ORDER FROM ROCHESTER  
 Obsolete Replaced By ECAs 183, 184, 185, 186  
 83-03-05

**Purpose**

Release an Improved Work Station Controller (WSC) card.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548753 B/M2548763 B/M2551004 B/M2551011	WSC #1 WSC #2 WSC #3 WSC #4 ----- S/36 prior to S/N25011	B/M2771153 B/M2771154 B/M2771155 B/M2771156 -----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771153	1.5	1.0
B/M2771154	0.2	0.1
B/M2771155	0.2	0.1
B/M2771156	0.2	0.1

**Prerequisites**

ECA120, EC839405

**Companion**

None

**Concurrent**

None

**Detail**

The Improved WSC card resolved the following problems:

1. Fail to print, or print wrong data after "PRINT" key is depressed.
2. Looping by WSC after the "ENTER/CA/CF" key is depressed.

**ECA160**

EC840992 82-08-11  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 82-09  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced by ECA182 84-03-12

**Purpose**

Periodic 11 Documentation update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923 B/M2548962 B/M4223259	Base MLM Communications 3370 ----- S/36 prior to S/N24482	B/M2771086 B/M2771087 B/M2771089 -----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771066	1.0	0.0
B/M2771067	0.2	0.0
B/M2771089	0.2	0.0

## Prerequisites

ECA153, EC840991

## Companion

ECA163, EC837990

## Concurrent

None

## Detail

This FB/M provides supporting documentation for Micro-code Release 4.1

## ECA161

EC841340  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

82-08-11  
SERVICE CODE 33  
82-07  
ROCHESTER  
ROCHESTER

## Purpose

Field install printer coupler.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548782	3282 1st Position	B/M4361035

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4361035	0.5	0.5

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

This FB/M corrects a problem where the printer coupler disengages from the 3/38 main frame due to interference with a weld nut on the bottom of the printer frame.

## ECA162

EC841309  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

82-08-11|REV. 83-01-28  
SERVICE CODE 33  
82-08  
ROCHESTER  
ROCHESTER

## Purpose

Correct 200V, 208V 60HZ CE transformer wiring error.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548743	60HZ Power	B/M4361447
		S/38 prior to S/N24305	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4361447	0.1	0.1

## Prerequisites

ECA153, EC840991

## Companion

ECA172, EC841414

## Concurrent

None



**Detail**

This FB/M corrects a factory wiring error on the CE convenience outlet.

This FB/M will ship with EC841414 to reduce travel and installation time.

**ECA163**

EC837880  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

82-08-11|REV. 83-01-28  
SERVICE CODE 33  
82-09  
ROCHESTER

01A-A1 Replaced by EC837880 S/P 1.03

**Purpose**

Periodic 11 microcode update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All 967	B/M2548924	Base Microcode B/O Diskettes Documents for A/FE & E/ME/A Documents for E/ME/A	B/M4361373 B/M4361430 B/M4361432  B/M5557368
-----	-----	S/38 prior to S/N24484	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4361373	2.0	1.7
B/M4361430	0.0	0.0
B/M4361432	0.0	0.0
B/M5557368	0.0	0.0

**Prerequisites**

ECA155, EC837989

**Companion**

ECA160, EC840992

**Concurrent**

None

**Detail**

This FB/M provides microcode to:

- 3370 retry via power down, power up sequence.
- Include number of diskette in error code when MSSD terminates abnormally.
- Add physical address display (in decimal) for physical CYL, Logical CYL, and logical head of 3370 in pump, EREP, MSSD/INTERIM log.
- Improvements to EREP and 3370 error recovery.

**ECA164**

EC841360  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 82-09-08

82-09-08  
SERVICE CODE 33  
83-08  
ROCHESTER

**Purpose**

Update board 01A-A1.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Final Electrical	B/M2771187
-----	-----	S/38 prior to S/N25771	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771187	2.0	1.5

**Prerequisites**

ECA145, EC840988

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M updates the 01A-A1 board for future expansion and will be shipped only when required with an MES order only.

## ECA165

EC841308  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

92-09-08  
SERVICE CODE 33  
83-01  
ROCHESTER  
ROCHESTER

### Purpose

Install side mounted EPO switch shield.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548800	Final Asm Mech	B/M4381434

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4381434	0.3	0.0

### Prerequisites

None

### Companion

None

### Concurrent

None

### Detail

Installation of the EPO switch shield should minimize inadvertent tripping of the EPO switch. This FB/M will ship with another FB/M to reduce CE travel time. The switch shield is not required for S/38 with the console mounted EPO switch.

## ECA166

EC921885A

82-11-03

### Purpose

This ECA is released for World Trade Use only.

## ECA167

EC841171  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced by

82-11-03  
SERVICE CODE 33  
82-11  
ROCHESTER  
ECA187 83-06-15

### Purpose

Microcode update.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
989		AFE & E/ME/A Code A Replacement Centers	B/M2771230
-----	-----	S/38 prior to S/N24844	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771230	0.0	0.0

### Prerequisites

ECA163, EC837990

### Companion

None

### Concurrent

ECA188, EC841390

### Detail

This FB/M provides to World Trade the updated micro-code to support a new 62PC adapter card and a new 3370 adapter card. The code will be shipped with ECA188 to all affected machines. ECA167 is for control purposes and cannot be ordered.

## ECA168

EC841390  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced by

82-11-03  
SERVICE CODE 33  
82-11  
ROCHESTER  
ECA174 82-12-01

**Purpose**

Replace Auto IMPL card in 01BA1B2 to inhibit unexpected power-on sequences.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feature/Device Description	B/M to be Installed
All	B/M2548976 B/M2548977	Auto IMPL 60 Hz Auto IMPL 50 Hz  S/38 prior to S/N 20144	B/M5557768

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5557768	0.5	0.4

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA080**

EC837978  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER  
Obsolete Replaced By ECA091 84-03-05

**Purpose**

Periodic 4 microcode update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feature/Device Description	B/M to be Installed
All	B/M2548708	3410/11 Diagnostics  S/38 prior to S/N 20167	B/M5557939

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5557939	2.2	2.0

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M5557939	ECA020 ECA028 ECA038 ECA040 ECA047 ECA050 ECA059	EC837508 EC837777 EC837849 EC837977 EC839116 EC839105 EC836426	

**Companion**

ECA081 EC839108

**Concurrent**

None

**ECA081**

EC839108  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER  
Obsolete Replaced By ECA101 81-10-16

**Purpose**

Periodic 4 MLM update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feature/Device Description	B/M to be Installed
All	B/M2548923	Base MLM  S/38 prior to S/N 20167	B/M2548299

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2548299	0.5	0.0

## Prerequisites

ECA050 EC839105

## Companion

ECA080 EC837978

## Concurrent

None

## ECA082

EC839325  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

80-02-22|REV. 80-05-18  
SERVICE CODE 33  
80-02  
ROCHESTER  
ROCHESTER

## Purpose

This EC installs the Logic Board Wiring Changes announced in ECAs 056, 057, and 058. When ECA082 is installed, ECAs 056, 057, and 058 are installed also. FB/Ms 2550621 and 5556870 install ECA056, EC837792. FB/M5556869 installs ECA058, EC837836. FB/M5556905 installs ECA057, EC837837.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548978	01A-A2 Board W/EC 837576	B/M2550621
	B/M2548774	Basic	B/M5556869
	B/M2548978	01-A2 Board WO/EC 837576 and WO/EC 837792	B/M5556870
	B/M2548846	01A-B2 Board WO/EC 837837	B/M5556865
		S/38 prior to S/N 20133	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2550621	1.2	1.0
B/M5556869	1.2	1.0
B/M5556870	1.2	1.0
B/M5556905	2.2	2.0

## Prerequisites

ECA054 EC838444  
ECA059 EC838426  
ECA062 EC837828

## Companion

None

## Concurrent

None

## ECA083

EC837823  
MANDATORY

80-03-21

AUTOSHIPPED FROM  
Obsolete 84 03-05

## Purpose

This ECA is for control purposes only. No FB/M is released on this EC.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548950	72 MD Adapter	

## ECA084

EC839286  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86 06-16

80-03-21  
SERVICE CODE 33  
80-03  
ROCHESTER

## Purpose

Add ground jumper from frame 01 to frame 02; or add ground jumper connection in frame 01 if frame 02 is not installed.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548746 B/M2548815 B/M2548837	60Hz 50Hz Frame 02	B/M4224081

B/M2548748 B/M2548815	60Hz 50Hz Without Frame 02	B/M4224092
	S/38 prior to S/N 20170	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224081	0.5	0.4
B/M4224092	0.5	0.4

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA085**

EC837688 80-03-21  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 80-03  
 AUTOSHIPPED FROM ROCHESTER

Obsolete Replaced By ECA101 81-10-16

**Purpose**

Update 72 MD Attachment.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548895	72 MD Attachment	B/M2550205
		S/38 prior to S/N 20186	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2550205	2.0	1.5

**Prerequisites**

ECA080 EC837978

**Companion**

None

**Concurrent**

None

**ECA086**

EC839324 80-03-21  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 80-03  
 AUTOSHIPPED FROM ROCHESTER

Obsolete Replaced By ECA101 81-10-16

**Purpose**

MLM Update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M5558888
		S/38 prior to S/N 20167	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5558888	0.5	0.0

**Prerequisites**

ECA080 EC837978

**Companion**

None

**Concurrent**

None

**ECA087**

EC839253 80-03-21/REV. 80-06-13  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 30-03  
 AUTOSHIPPED FROM ROCHESTER

Obsolete Replaced By ECA101 81-10-16

## Purpose

Replace "Board to Tailgate" cable for Communications features.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2549318	Communication	B/M4225845
		S/38 prior to S/N 20184	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4225845	1.2	1.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA088

EC839254  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-03-21  
SERVICE CODE 33  
80-03  
ROCHESTER

## Purpose

This ECA is released for World Trade Use only.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4223409	1200 BPS Modem switched	B/M4224282
		S/38 prior to S/N 20184	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224282	1.2	1.0

## Prerequisites

ECA087 EC839253

## Companion

None

## Concurrent

None

## Detail

Replace World Trade switched 38 LS internal cable for compatability.

## ECA089

EC837844  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA106 80-03-05

80-03-21  
SERVICE CODE 33  
80-03  
ROCHESTER

## Purpose

Replace over current board assembly.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548883	Basic Power	B/M5557919
		S/38 prior to S/N 20220	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557919	1.3	1.2

## Prerequisites

ECA041 EC837812  
ECA080 EC837711  
ECA081 EC839196

**Companion**

None

**Concurrent**

None

**ECA090**

EC837960 80-03-21  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 80-03  
 AUTOSHIPPED FROM ROCHESTER

Obsolete Replaced By ECA120 81-10-16

**Purpose**

Replace Workstation Adapter cards.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548753 B/M2548763	Workstation # 1 Workstation # 2	B/M5557069 B/M5557070
801		BO Support Documentation	B/M4224276
		S/38 prior to S/N 20184	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5557069	1.2	1.0
B/M5557070	1.2	1.0
B/M4224276	0.0	0.0

**Prerequisites**

ECA080 EC837978

**Companion**

None

**Concurrent**

None

**ECA091**

EC839225  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM

Obsolete Replaced By ECA101 81-03-05

80-03-21  
 SERVICE CODE 33  
 80-03  
 ROCHESTER

**Purpose**

Update SLV to incorporate Update/Patch revision.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode	B/M4364109
		S/38 prior to S/N 20186	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4364109	1.7	1.5

**Prerequisites**

ECA080 EC837978

**Companion**

None

**Concurrent**

None

**ECA092**

EC839358  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM

Obsolete Replaced By ECA101 81-10-16

80-03-21  
 80-03  
 ROCHESTER

**Purpose**

Update Branch Office Support Documentation.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
901	B/M4224571	BO Support Documentation	B/M5557893

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557893	0.0	0.0

## Prerequisites

None

## Companion

None

## Concurrent

None

**ECA093**

EC839107  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA001 81-10-16

80-03-21|REV. 80-05-16  
SERVICE CODE 33  
80-04  
ROCHESTER

## Purpose

Periodic 5 MLM update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M5556884
		S/38 prior to S/N 20205	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5556884	0.5	0.0

## Prerequisites

ECA081 EC830106

## Companion

ECA094 EC837879

## Concurrent

None

**ECA094**

EC837879  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA100 91-03-05

80-03-21|REV. 80-05-16  
SERVICE CODE 33  
80-04  
ROCHESTER

## Purpose

Periodic 5 Microcode update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode World Trade	B/M8327736 B/M4363913
901		BO Support Documentation	B/M4225052
		S/38 prior to S/N 20205	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8327736	2.0	1.8
B/M4363913	2.0	1.8
B/M4225052	0.0	0.0

## Prerequisites

ECA080 EC837978  
ECA081 EC839225

## Companion

ECA083 EC830107



**Concurrent**

None

**ECA095**
 EC839188  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

 80-05-18  
 SERVICE CODE 33  
 80-06  
 ROCHESTER
**Purpose**
 Install new SDLC card to fix microcode problems and  
 add transmit/receive indicator for the internal trap func-  
 tion.
**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548861 B/M2551018	Comm SDLC Adapt SS1 Comm SDLC Adapt SS2	B/M5557931
-----	-----	S/38 prior to S/N 20258	-----

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M5557931	1.0	0.8

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA096**
 EC839310  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 85-09-12

 80-05-18  
 SERVICE CODE 33  
 80-05  
 ROCHESTER
**Purpose**
 Installs dual-byte cable and terminator card on all  
 machines without dual-byte feature.
**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774 -W/O- B/M4224556	Basic  Dual Byte  S/38 prior to S/N 20231	B/M5557884

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M5557894	2.0	1.9

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA097**
 EC839227  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

 80-05-18  
 SERVICE CODE 33  
 80-05  
 ROCHESTER
**Purpose**

Install main storage power cable.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
32X	B/M2548711	Main Storage (512K)	B/M4224371
33X	B/M2548715	Main Storage (786K)	
34X	B/M2548721	Main Storage (1M)	
52X	B/M2548785	Main Storage (512K)	

53X	B/M2548796	Main Storage (786K)	
54X	B/M2548797	Main Storage (1M)	
		S/38 prior to S/N 20231	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224371	1.0	0.8

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA098

EC839444  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 84-03-05

80-05-16  
SERVICE CODE 33  
80-06  
ROCHESTER

## Purpose

Corrects the MCR on systems having the 788K Main Store feature.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3/4 5A 5B	B/M2551201 B/M2551205 B/M4224630	786K Feature 788K Feature 788K Feature	B/M4224316
		S/38 prior to S/N 20258	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224316	1.0	0.8

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA099

EC839448  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 84-03-05

80-05-16  
SERVICE CODE 33  
80-06  
ROCHESTER

## Purpose

Correct the MCR on systems having the 3410/11 feature.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548706	3410/11 Feature	B/M8328054
		S/38 prior to S/N 20240	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328054	1.0	0.8

## Prerequisites

None

## Companion

None

## Concurrent

None

**ECA100**

EC837980 80-06-13|REV. 81-10-30  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 80-06  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced By ECA111 81-03-05

**Purpose**

Periodic 6 microcode update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All 901	B/M2548924 B/M4224571	Base Microcode BO Support- Documentation  S/38 prior to S/N 20246	B/M4224422 B/M4224869

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224422	2.3	0.8
B/M4224869	0.0	0.0
B/M4223561	0.0	0.0

**Prerequisites**

ECA094 EC837979

**Companion**

ECA101 EC839199

**Concurrent**

None

**ECA101**

EC839199 80-06-13|REV. 81-10-30  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 80-06  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced By ECA112 81-03-05

**Purpose**

Periodic 6 MLM update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM  S/38 prior to S/N 20246	B/M8328062

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328062	0.5	0.0

**Prerequisites**

ECA093 EC839107

**Companion**

ECA100 EC837980

**Concurrent**

None

**Detail**

ECA101 provides a complete replacement Maintenance Library Manuals and obsoletes all previous documentation ECAs.

**ECA102**

EC839329 80-07-25|REV. 81-10-30  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 80-06  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced By ECA172, 173 81-03-05

**Purpose**

Replace 62PC adapter cards in U1AA1-G2 (F2) to eliminate problem of channel hang ups during FOB timeouts.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548839 B/M2548862	First 62PC Adapter(1-4) Second 62PC Adapter(5-6)	B/M2550514 B/M2550515

	All S/38 prior to S/N 20256	
--	--------------------------------	--

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2550514	1.2	1.0
B/M2550515	1.2	1.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA103

EC839461  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86 06 16

80-07-25|REV. 81-10-30  
SERVICE CODE 33  
80-08  
ROCHESTER

## Purpose

Install ferrite cores around MFCU adapter cables to  
Improve Radio Frequency Interference (RFI) suppression.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548875	MFCU Adapter	B/M8328078
		S/38 prior to S/N 20451	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328078	1.2	1.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA104

EC839586  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 84 03 05

80-08-22|REV.81-10-30  
SERVICE CODE 33  
80-08  
ROCHESTER

## Purpose

Microcode change to fix following problems:

1. Update/Patch - Formatting of diskettes added by 3370 MES Installation.
2. Pump - Problems that could affect customer data if Backup/Restore is used.
3. HST - Wrong belt image message on printers with single home pulse belts.
4. HMC - Timing problems on Planar.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode	B/M8328284
		S/38 prior to S/N20335	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328284	1.0	0.8

## Prerequisites

ECA100 EC837980  
ECA101 EC839199

## Companion

None

## Concurrent

None

**ECA105**

EC839395  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

80-09-05|REV. 81-10-30  
SERVICE CODE 33  
80-11  
ROCHESTER

**Purpose**

Replace SCA card to change operation of LED 0. This corrects problem of possible misleading halt codes in console lights.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Basic  S/38 prior to S/N 20613	B/M4363947

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M4363947	1.0	0.8

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA106**

EC839577  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

80-09-05  
SERVICE CODE 33  
80-08  
ROCHESTER

**Purpose**

Replace Base Over Current (O/C) board to add Electrostatic Discharge (ESD) protection.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548883	Base Power  S/38 prior to S/N 20256	B/M8328225

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M8328225	1.4	1.2

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA107**

EC840883  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

80-09-05|REV. 81-10-30  
SERVICE CODE 33  
80-08  
ROCHESTER

Obsoleted 84-03-05

**Purpose**

Revise 5381 microcode to pick up MTR M025645 and replace Patch 01.

Fixes problem of unexplained function checks, machine checks, and data alterations.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548824	Base Microcode  5381s prior to S/N 20410	B/M8328356

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328356	1.0	0.8

## Prerequisites

ECA100, EC837980

## Companion

None

## Concurrent

None

## Concurrent

None

## ECA109

EC839587  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-12-19  
SERVICE CODE 33  
80-09  
ROCHESTER

## Purpose

Replace current 82PC motor TB cover with new cover that provides larger wire slot.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548839 B/M2548840 B/M2548841 B/M2548842 B/M2548788 B/M2548788	82PC-1 82PC-2 82PC-3 82PC-4 82PC-5 82PC-6	B/M8328297
		S/38 prior to S/N 20271	

## ECA108

EC839571  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-09-19  
SERVICE CODE 33  
80-09  
ROCHESTER

## Purpose

Replace communications adapter card to correct problem of invalid xmit/rec for Comm Trap data display when multiple lines are in operation.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548818	Comm Line Base SS1	B/M8328202
		S/38 prior to S/N 20387	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328297	0.7	0.5

## Prerequisites

None

## Companion

None

## Concurrent

None

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328202	1.2	1.0

## Prerequisites

None

## Companion

None

## ECA110

EC838427  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 84-03-05

80-12-19  
SERVICE CODE 33  
80-09  
ROCHESTER

**Purpose**

Update SLV to add diagnostics required to support SDLC Card installed by EC839166 (ECA095).

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548971	Comm Diagnostics S/36 prior to S/N 20416	B/M8328246

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328246	1.0	0.8

**Prerequisites**

ECA095 EC839166  
ECA100 EC837980

**Companion**

None

**Concurrent**

None

**ECA111**

EC837981  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA130 84-03-05

80-12-19  
SERVICE CODE 33  
80-08  
ROCHESTER

**Purpose**

Periodic 7 microcode update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All 901	B/M2548924 B/M4224571	Base Microcode BO Documentation S/36 prior to S/N20416	B/M8328327 B/M8328329 B/M8328330

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328327	2.3	2.0
B/M8328329	0.0	0.0
B/M8328330	0.0	0.0

**Prerequisites**

ECA 100, EC837980.  
ECA104, EC839588.  
ECA107, EC840893.

**Companion**

ECA112, EC839200.

**Concurrent**

None

**ECA112**

EC839200  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA129 84-03-05

80-12-19  
SERVICE CODE 33  
80-08  
ROCHESTER

**Purpose**

Periodic 7 MLM update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923 B/M2548705 B/M4223259 B/M2548962	Base MLM 3410/11 Feature 3370 Feature Communications Feature S/36 prior to S/N20416	B/M8328314 B/M8328315 B/M8328316 B/M8328317

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328314	1.0	0.0
B/M8328315	0.5	0.0
B/M8328316	0.5	0.0
B/M8328317	0.5	0.0

## Prerequisites

ECA101, EC838199

## Companion

ECA111, EC837981

## Concurrent

None

## ECA113

EC839538  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 83.03.05

80-12-19  
SERVICE CODE 33  
80-11  
ROCHESTER

## Purpose

Correct the MCR on systems having SDLC Communications feature.

## Machines, Features or Devices Affected

Type, Model, Stage	With E/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548861	Comm SDLC SS1	B/M8328561
		S/38 with S/N 20258 thru S/N 20415	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328561	1.0	0.8

## Prerequisites

ECA085, EC838166

## Companion

None

## Concurrent

None

## ECA114

EC838491  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 80.06.18

80-12-19  
SERVICE CODE 33  
80-12  
ROCHESTER

## Purpose

Correct CRT discharge problem on Model TV-12 displays to eliminate possible SCA checks and 72MD CRC errors.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode	B/M8328325
		S/38 with the following S/Ns 20024, 20067, 20072 through 20139, 20157, 20168, 20188 through 20260	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328325	1.5	1.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA115

EC838337  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 80.06.16

81-01-23  
SERVICE CODE 33  
81-12  
ROCHESTER



**Purpose**

Replace Auto IMPL card. Rework 01B - A1 board to add audible repower warning. Update Auto IMPL feature documentation.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923 B/M2548976 B/M2548977	Base MLM Auto IMPL 60 Hz Auto IMPL 50 Hz	B/M8328199 B/M8328326
		S/38 prior to S/N 20750	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328189	0.5	0.2
B/M8328326	1.0	0.6

**Prerequisites**

ECA079, EC839139

**Companion**

None

**Concurrent**

None

**ECA116**

EC840917 81-02-06  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 80-12  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced By ECA117 84 03 05

**Purpose**

This ECA is released for World Trade Use only.

Provides instructions for SLV replacement. Allows WT SLV Replacement Centers to use inventory diskettes for replacement SLV.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode	B/M8328612
		S/38 prior to S/N 20671	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328612	1.0	0.8

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA117**

EC840986 81-02-06  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 80-11  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete 84 03 05

**Purpose**

Corrects the MCR on machines having the Katakana feature.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548916	Katakana Feature	B/M8328562
		S/38 prior to S/N 21059	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328562	1.0	0.8

## Prerequisites

ECA111, EC837981

## Companion

None

## Concurrent

None

## Detail

Revise base MCR to change Table 5 preventing inadvertent deletion of the Katakana feature translate table.

**ECA118**

EC839547 81-02-06  
MANDATORY

AUTOSHIPPED FROM  
Obsolete 84-03-05

## Purpose

The FB/M released on EC839547 has been cancelled. EC839547 is now 'FACTORY ONLY'; no FB/M will ship. ECA118 becomes unused.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
--	--	--	--

**ECA119**

EC840919 81-02-06  
MANDATORY SERVICE CODE 33  
AVAILABLE 80-11  
AUTOSHIPPED FROM ROCHESTER  
Obsolete 84-03-05

## Purpose

MLM Update. There is no concurrent hardware change.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923 B/M4223259 B/M2548927 B/M2548705 B/M2548932	Base MLM 3370 Feature 5424 Feature 3410/11 Feature 3262/5211 Feature	B/M4224042 B/M8328557 B/M8328558 B/M8328559 B/M8328560
		S/38 prior to S/N 20514	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224042	0.5	0.0
B/M8328557	0.2	0.0
B/M8328558	0.2	0.0
B/M8328559	0.2	0.0
B/M8328560	0.2	0.0

## Prerequisites

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M4224042 B/M8328557 B/M8328558 B/M8328559 B/M8328560	ECA115 ECA101 ECA101 ECA112 ECA101	EC838337 EC839193 EC839199 EC839200 EC839199	

## Companion

None

## Concurrent

None

**ECA120**

EC839405 81-02-06|REV. 81-10-30  
MANDATORY SERVICE CODE 33  
AVAILABLE 81-02  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced By ECA159 84-03-05

## Purpose

Replace workstation controller card to fix 20 potential workstation and display problems.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548753 B/M2548763	WSC #1 WSC #2  S/38 prior to S/N 21000	B/M4363899 B/M4363900

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4363899	1.5	1.0
B/M4363900	1.5	1.0

**Prerequisites**

ECA096, EC839310

**Companion**

None

**Concurrent**

None

**ECA121**

 EC839568  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

 81-02-08  
 SERVICE CODE 33  
 81-03  
 ROCHESTER

**Purpose**

Replace SCA terminator card

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548749 B/M2548750 B/M2548751 B/M2548752	A1/B1 Boards A1/A2/B1 Boards A1/B1/B2 Boards A1/A2/B1/B2 Boards  S/38 prior to S/N21150	B/M8328109

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328109	1.0	0.8

**Prerequisites**

ECA096, EC839310

**Companion**

None

**Concurrent**

None

**ECA122**

 EC839517  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

 81-02-08|REV. 81-10-30  
 SERVICE CODE 33  
 81-02  
 ROCHESTER

**Purpose**

Replace 5424 attachment card.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548875	5424 Attachment  S/38 prior to S/N 21032	B/M8328077

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8328077	2.0	1.5

**Prerequisites**

ECA103, EC839461

**Companion**

None

## Concurrent

None

### ECA123

EC837982  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 84-03-05

81-02-06  
SERVICE CODE 33  
81-01  
ROCHESTER

## Purpose

Update B/O Support Documentation. This FB/M will be shipped automatically and cannot be reordered.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
901		B/O Documentation WT Documentation (1) WT Documentation (2)	B/M8328318 B/M8328590 B/M8328591

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328318	0.0	0.0
B/M8328590	0.0	0.0
B/M8328591	0.0	0.0

## Prerequisites

ECA111, EC837981

## Companion

None

## Concurrent

None

### ECA124

EC840944  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

81-02-06  
SERVICE CODE 33  
81-02  
ROCHESTER

## Purpose

Connects the 62PC 50HZ power supply transformer shield to frame ground.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548990 B/M2548993	62PC 3/4 Power 50 HZ 62PC 5/6 Power 50 HZ S/38 prior to S/N 21000	B/M8328532

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M8328532	1.0	0.6

## Prerequisites

ECA017, EC838267  
ECA019, EC937817

## Companion

None

## Concurrent

None

### ECA125

EC841003  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

81-02-06  
SERVICE CODE 33  
80-12  
ROCHESTER

## Purpose

Update resistor box P/N2550981 to reduce heat build up.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
5BX	B/M2548883 B/M4224648	Base Power Model 5B Electrical S/38 prior to S/N 20750	B/M4202224

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4223330 B/M4223340	Cover Latch Frame 01 Cover Latch Frame 02	B/M4225946 B/M4225947
-----	-----	50 Hz S/38 only	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225946	0.6	0.4
B/M4225947	0.6	0.4

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA026**

EC837830  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

78-10-12|REV. 80-04-04  
SERVICE CODE 33  
79-07  
ROCHESTER

**Purpose**

Replace unused gate in tailgate area with one piece cover.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548837	02 Feature Frame	B/M4225123
-----	-----	S/38 prior to S/N 20100	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225123	0.4	0.4

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA027**

EC837898  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA102 81-10-16

79-10-12|REV. 80-04-04  
SERVICE CODE 33  
79-07  
ROCHESTER

**Purpose**

Update 62PC adapter hardware to EC level 837898 by replacing current adapter card(s) in 01AA1-G2 (F2) with new card P/N4225828. Fixes symptom of machine check 0815.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548839 B/M2548992	First 62PC Adapter (1-4) Second 62PC Adapter(5-8)	B/M2548565 B/M2549351
-----	-----	S/38 prior to S/N 20098	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2548565	0.7	0.5
S/M2549351	0.7	0.5

**Prerequisites**

None

### Companion

None

### Concurrent

None

**ECA028**

EC837777 79-10-12|REV. 80-05-16  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-11  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced By ECA097 8Q-05-16

### Purpose

Update SDLC Communications Control Card to correct multiple microcode problems.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feature/Device Description	B/M to be Installed
All	B/M2548861	SDLC Communications Control Card (CCC)	B/M4225967
		S/38 prior to S/N 20125	

### Estimated Installation Time

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M4225967	0.9	0.8

### Prerequisites

None

### Companion

None

### Concurrent

None

**ECA029**

EC836125 79-10-12|REV. 80-04-04  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-08  
AUTOSHIPPED FROM ROCHESTER  
Obsolete 86-06-16

90-08-19

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### Purpose

Change Austria/Germany keyboard function key from 'CF' to 'FT' (Funktionen Taste).

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feature/Device Description	B/M to be Installed
All	B/M2548829	Austria/Germany Keyboard Language Group	B/M2550449
		S/38 prior to S/N20103	

### Estimated Installation Time

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M2550449	1.2	1.0

### Prerequisites

None

### Companion

None

### Concurrent

None

**ECA030**

EC836463 79-11-09|REV. 80-04-04  
AS REQUIRED SERVICE CODE 33  
AVAILABLE 79-08  
ORDER FROM ROCHESTER  
Obsolete 86-06-16

### Purpose

Change CRT display from white to green phosphor, to provide a flicker free display.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548800	Basic S/38 prior to S/N 20103	B/M4224421

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224421	0.9	0.7

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA031**

EC837528  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
86-06-16

79-11-09|REV. 80-04-04  
SERVICE CODE 33  
79-11  
ROCHESTER

**Purpose**

Replace unplated serpentine connectors for 3410/3411 Mag Tape attachment with plated serpentine connectors to reduce susceptibility to electrostatic discharge (ESD).

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548728	3410/11 Tape Attach S/38 prior to S/N 20098	B/M4224334

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224334	1.4	1.2

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA032**

EC837745  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA101 81-10-16

79-11-09|REV. 80-06-13  
SERVICE CODE 33  
79-08  
ROCHESTER

**Purpose**

Update MLM package with exception of Power Documentation.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM S/38 prior to S/N 20103	B/M4225965

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225965	0.4	0.0

**Prerequisites**

None

**Companion**

None

## Concurrent

None

## Detail

Place existing Power Documentation MAPs (Vol A-40), Theory and Maintenance (Vol B-20, and B-21), and Logic pages (Vol J YAXXX and YBXXX) into new binders supplied by this B/M.

**ECA033**

EC837975 79-11-09|REV. 80-04-04  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-07  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced By ECA040 81-10-16

## Purpose

To update S/38 microcode replace SLV1 and SLV2.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Basic	B/M5556835
		S/38 prior to S/N 20103	

## Estimated Installation Time

<b>B/M Installed</b>	<b>Service Hours</b>	<b>System Hours</b>
B/M5556835	2.3	2.0

## Prerequisites

None

## Companion

None

## Concurrent

ECA035 EC837868

**ECA034**

EC837976 79-11-09|REV. 80-04-04  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-11  
AUTOSHIPPED FROM ROCHESTER  
Obsolete 81-10-16

79-11-09|REV. 80-04-04  
SERVICE CODE 33  
79-11  
ROCHESTER

## Purpose

Periodic 2 microcode update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548706	Basic	B/M3557032
		S/38 prior to S/N 20125	

## Estimated Installation Time

<b>B/M Installed</b>	<b>Service Hours</b>	<b>System Hours</b>
B/M5557032	2.3	2.0

## Prerequisites

ECA033 EC837995

## Companion

None

## Concurrent

None

**ECA035**

EC837868 79-11-09|REV. 80-04-04  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-08  
AUTOSHIPPED FROM ROCHESTER  
Obsolete 81-10-16

79-11-09|REV. 80-04-04  
SERVICE CODE 33  
79-08  
ROCHESTER

## Purpose

Replace planar.



**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Basic	B/M5558838
-----	-----	S38 prior to S/N 20103	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5558838	1.0	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

ECA033 EC837975

**ECA036**

EC837849 79-11-09|REV. 80-04-04  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 79-12  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced By ECA090 81-10-16

**Purpose**

Replace workstation controller base adapter card to fix multiple microcode problems.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548753	First Workstation Controller	B/M4225985
-----	B/M2548763	Second Workstation Controller	B/M4225986
-----	-----	S/38 prior to S/N 20125	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225985	0.7	0.5
B/M4225986	0.7	0.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA037**

EC836198 80-04-04  
 AS REQUIRED SERVICE CODE 33  
 AVAILABLE 79-08  
 ORDER FROM ROCHESTER  
 Obsolete Replaced By ECA095 81-10-16

**Purpose**

Revises operation of respond to poll command when operating as a secondary by replacing SDLC communications control card (CCC).

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548861	Comm SDLC Feat SS1	B/M4224147
-----	-----	S/38 prior to S/N 20098	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224147	1.0	0.8

**Prerequisites**

None

**Companion**

None

## Concurrent

None

### ECA038

EC837789  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By 86-06-16

79-11-09|REV. 80-04-04  
SERVICE CODE 33  
79-08  
ROCHESTER

## Purpose

Replace K1 relay arc suppressor and remove K7 relay arc suppressor to meet product safety standards.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2458746 B/M2548815	60 Hz Power 50 Hz Power	B/M2550221 B/M2550365
		S/38 prior to S/N 20103	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2550221	0.8	0.8
B/M2550365	0.8	0.8

## Prerequisites

None

## Companion

None

## Concurrent

None

### ECA039

EC837742  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA079 81-10-16

80-04-04  
SERVICE CODE 33  
79-11  
ROCHESTER

## Purpose

Replace Auto IMPL Card Assembly in O/B-A1B2 to prevent unexpected power on sequences.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548976 or B/M2548977	Auto IMPL 60 Hz Auto IMPL 50 Hz	B/M4363822
		S/38 prior to S/N 20103	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4363822	0.5	0.4

## Prerequisites

None

## Companion

None

## Concurrent

None

### ECA040

EC837877  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA080 84-03-05

79-11-09|REV. 80-05-18  
SERVICE CODE 33  
79-11  
ROCHESTER

## Purpose

Periodic 3 microcode update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Basic	B/M5557356
		S/38 prior to S/N 20125	

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M5557358	2.0	2.0

**Prerequisites**

ECA034 EC837978

**Companion**

None

**Concurrent**

None

**ECA041**

EC837812	80-01-25
MANDATORY	SERVICE CODE 33
AVAILABLE	79-08
AUTOSHIPPED FROM	ROCHESTER
Obsolete 86-06-16	

**Purpose**

Replace remote relay control driver board, to prevent 3410-11 from dropping power due to loss of 24 volts.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548733	PWR Expansion Pre-Req 1	B/M4225384
		S/38 prior to S/N 20103	

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M4225384	2.0	1.8

**Prerequisites**

ECA019 EC837817

**Companion**

None

**Concurrent**

None

**ECA042**

EC837845	80-01-25 REV. 80-04-04
MANDATORY	SERVICE CODE 33
AVAILABLE	79-11
AUTOSHIPPED FROM	ROCHESTER
Obsolete Replaced By	ECA101 81-10-16

**Purpose**

Update MLM.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M4363842
		S/38 prior to S/N 20125	

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M4363842	1.0	0.0

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M4363842	ECA032 ECA049*	EC837745 EC837825	See Notes

**Companion**

None

**Concurrent**

None

**Notes**

\* ECA042 contains the documentation which reflects the rework being done on ECA049 and supercedes the documentation from ECA049.

## ECA043

EC837967  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 80 06 16

80-01-25  
SERVICE CODE 33  
79-11  
ROCHESTER

### Purpose

Provides new card to increase control store on all Model 3XX machines to 8K words.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3XX	B/M2548835	4K Control Storage S/38 prior to S/N 20133	B/M5557350

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557350	1.2	1.0

### Prerequisites

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M5557350	ECA034 ECA051**	EC837976 EC839115	** See Notes

### Companion

None

### Concurrent

None

### Notes

\* ECA044 provide a new array board required for ECA043.

\*\* ECA051 contains the documentation to support the rework done by ECA043 & ECA044.

## ECA044

EC839060  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 80 06 16

80-01-25/REV. 80-05-18  
SERVICE CODE 33  
79-11  
ROCHESTER

### Purpose

Replace down level array board with new array board.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3XX	B/M2578774	Basic S/38 prior to S/N 20133	B/M5557029

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557029	1.5	1.3

### Prerequisites

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M5557029	ECA043* ECA051*	EC837967 EC839115	* See Notes * See Notes

### Companion

None

### Concurrent

None

### Notes

\* Review ECA043 and ECA051.

## ECA045

EC839088  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By

80-04-04  
SERVICE CODE 33  
79-12  
ROCHESTER

ECA080 81 03 05

**Purpose**

This ECA is for control purposes only.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode	

**ECA046**

EC839172  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-04-04  
SERVICE CODE 33  
79-12  
ROCHESTER  
Obsolete Replaced By ECA080 84-03-05

**Purpose**

This ECA is for control purposes only.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode	

**ECA047**

EC839118  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-04-04  
SERVICE CODE 33  
79-11  
ROCHESTER  
Obsolete Replaced By ECA080 84-03-05

**Purpose**

This ECA is for control purposes only.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Base Microcode	

**ECA048**

EC839214  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-01-25  
SERVICE CODE 33  
80-11  
ROCHESTER  
Obsolete Replaced By ECA101 81-10-16

**Purpose**

Reclassify MLM.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548802	Ship Group	B/M5557930

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5557930	0.5	0.0

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M5557930	ECA051*		*See Notes

**Companion**

None

**Concurrent**

None

**Notes**

\* ECA051 which provides updates to the MLM should be installed concurrently with this ECA048.

**ECA049**

EC837625  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-01-25  
SERVICE CODE 33  
78-08  
ROCHESTER  
Obsolete 86-06-16

## Purpose

Remove Rect/Cap Asm #1 (+25 VDC), update MLM Vol J and MAPs.

+25 VDC is no longer required.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Basic	B/M4225617
-----	-----	S/38 prior to S/N 20103	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4225617	1.2	1.0

## Prerequisites

\* See Notes

## Companion

None

## Concurrent

None

## Notes

\* The documentation supporting this rework is supplied by ECA042.

## ECA050

EC839105 80-01-25  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-12  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced By ECA101 81-10-16

## Purpose

MLM update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M5557474
-----	-----	S/30 prior to S/N 20136	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557474	0.5	0.0

## Prerequisites

ECA042 EC837845

## Companion

None

## Concurrent

None

## ECA051

EC839115 80-01-25  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-12  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced By ECA101 81-10-16

## Purpose

MLM update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M5557589
-----	-----	S/38 prior to S/N 20136	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557589	1.0	0.0

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
5557589	ECA042 ECA043 ECA044 ECA045 ECA046	EC837845 EC837967 EC839080 EC839068 EC839172	*See Note 1 *See Note 1 *See Note 2 *See Note 2

**Companion**

None

**Concurrent**

None

**Notes**

1. ECA051 supplies the documentation to support the rework done on ECA043 and ECA044.
2. ECA051 supplies the documentation to support the SLV microcode change on ECA045 and ECA048. ECA051 should be installed as a prerequisite to ECA080 (837978).

**ECA052**

EC837778  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
79-07  
ROCHESTER

**Purpose**

Reduce printer and system susceptibility to electrostatic discharge by providing a better connection from the printer I/O cable shield to the system frame.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548800	Basic S/38 prior to S/N 20100	B/M5556903

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5556903	1.0	0.7

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA053**

EC928090

80-01-25

**Purpose**

This ECA is released for World Trade Use only.

**ECA054**

EC836444  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER

**Purpose**

Upgrade 01A-A1 logic board to incorporate necessary changes to minimize electro-magnetic interference (EMI) and radio frequency interference. This ECA054 removes REA 10-27197 from the 01A-A1 board.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Basic S/38 prior to S/N 20133	B/M5556906

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5556906	2.2	2.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA055

EC836217  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
79-10  
ROCHESTER

## Purpose

Provides an Improved tape adapter card.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548728	3410/3411 Tape Attachment	B/M2550380
		S/38 prior to S/N 20125	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2550380	2.4	2.2

## Prerequisites

ECA033 EC837975

## Companion

None

## Concurrent

None

## ECA056

EC837792  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
79-12  
ROCHESTER

## Purpose

This ECA is for control purposes only. No FBM will be shipped.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548978	01A-A2 Board	

## ECA057

EC837837  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
79-12  
ROCHESTER

## Purpose

This ECA is for control purposes only. No FB/M will be shipped.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548846	01A-B2 Board	

## ECA058

EC837838  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
79-12  
ROCHESTER

## Purpose

This ECA is for control purposes only. No FB/M will be released.



**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774	Basic	

**ECA059**

EC838428  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

80-01-25  
 SERVICE CODE 33  
 79-12  
 ROCHESTER

**Purpose**

Replaces SCA and console cards.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548774 B/M2548889	Basic Console W/ Katakana	B/M5558881 B/M5558882
		S/38 prior to S/N 20125	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5558881	3.0	2.0
B/M5558882	3.0	2.0

**Prerequisites**

ECA034 EC837978

**Companion**

None

**Concurrent**

None

**ECA060**

EC837711  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

80-01-25|REV. 81-10-18  
 SERVICE CODE 33  
 79-12  
 ROCHESTER

**Purpose**

Improve phase balancing of AC loads and change CB8 from a 10 AMP to a 4 AMP circuit breaker.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548815	50Hz Power	B/M5557025
		S/38 prior to S/N 20138	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5557025	1.3	1.1

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA061**

EC837917  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

80-01-25  
 SERVICE CODE 33  
 79-12  
 ROCHESTER

**Purpose**

Replace Power Control Card Asm in 01B-Gate to Inhibit Base 1 O/C Indications after the Base 1 XFMR is de-energized.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M254883	Base Power	B/M555834
		S/38 prior to S/N20125	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M555834	1.0	0.8

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA062

EC837928  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER

## Purpose

Replace IOC cards to install changes to IOC clock receiving. Circuitry required for the elimination of EMI and RFI.

## Machines, Features or Devices Affected

Type, Model, Stage	With E/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548898 B/M2548899	IOC # 1 IOC # 2	B/M5557030 B/M5557031
		S/38 prior to S/N 20131	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557030	1.0	1.0
B/M5557031	1.0	1.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA063

EC837913  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER

## Purpose

Change CB8 from a 10 AMP to a 4 AMP circuit breaker.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548748	60Hz Power	B/M5557331
		S/38 prior to S/N 20138	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557331	1.0	0.7

## Prerequisites

None

## Companion

None

**Concurrent**

None

**ECA064**

EC839081  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER

**Purpose**

Change 'System Request' keytop from "Syq Req" to "Sys Req".

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	E M to be Installed
All	B/M2548820 B/M2548821 B/M2548822 B/M2548824 B/M2548825 B/M2548826 B/M2548828 B/M2548885 B/M2548886 B/M2548889 B/M2548891 B/M2548909 B/M2551081 B/M2551130	Keyboard: English - USA English - UK Portugese Norwegian Finland Belgian Denmark Brazil Japan Japan-Katakana Sweden Con/Kybd UK Japan	B/M5557442
		S/38 prior to S/N 20144	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5557442	0.3	0.2

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA065**

EC837828  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

**SAFETY**

80-01-25  
SERVICE CODE 33  
79-12  
ROCHESTER

**Purpose**

SAFETY

Add safety label to 01AC-Box.

If the EC is installed, there should be a 550V warning label above the capacitor in the AC box.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548800	Basic S/36 prior to S/N 20144	B/M5557464

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5557464	0.3	0.2

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA066**

EC837822  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced by ECA 189, 190 84-03-05

80-01-25  
SERVICE CODE 33  
80-02  
ROCHESTER

## Purpose

Replace print adapter card(s) to correct these problems:

1. Invalid skipping after end of forms occurs while printing from Spool.
2. An invalid command reject 46 when pressing the stop key at end of data block.
3. Invalid carriage check 4 due to canceling Spool writer while printing.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548876 B/M2548871	1st 3262/5211 Adapter 2nd 3262/5211 Adapter	B/M5557026 B/M5557027
-----	-----	S/38 prior to S/N 20153	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557026	1.0	0.7
B/M5557027		

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA067

EC839162  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER

## Purpose

Add ARC Suppression to Relay K7.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548746 B/M2548815	60 Hz Power 50 Hz Power	B/M5557580
-----	-----	S/38 prior to S/N 20171	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557580	0.5	0.3

## Prerequisites

ECA038 EC837769

## Companion

None

## Concurrent

None

## ECA068

EC839131  
AS REQUIRED  
AVAILABLE  
ORDER FROM  
Obsolete 84-03-05

80-01-25  
SERVICE CODE 33  
79-12  
ROCHESTER

## Purpose

Update to SLV required for test purposes only.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548705	Basic	B/M5557764
-----	-----	S/38 S/N 20009 and 20075 only	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557764	0.7	0.5

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M5557764	ECA020 ECA038 ECA040 ECA055	EC837508 EC837849 EC837997 EC838217	

**Companion**

ECA089 EC839141

**Concurrent**

None

**ECA069**
 EC839141  
 AS REQUIRED  
 AVAILABLE  
 ORDER FROM

Obsolete 81-10-16

 80-01-25  
 SERVICE CODE 33  
 80-12  
 ROCHESTER
**Purpose**
 MLM update which supports microcode change from  
 ECA088.
**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548705	3410/11 MLM	B/M5557600
		S/38 with S/N 20009 and 20075 only	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M5557600	0.3	0.0

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Check for Prerequisites
B/M5557600	ECA050 ECA068	EC839105 EC839131	

**Companion**

None

**Concurrent**

None

**ECA070**

80-01-25

**Purpose**

This ECA is released for World Trade Use only.

**ECA071**

80-01-25

**Purpose**

This ECA is released for World Trade Use only.

**ECA072**

80-01-25

**Purpose**

This ECA is released for World Trade Use only.

**ECA073**

80-01-25

**Purpose**

This ECA is released for World Trade Use only.

**ECA074**

80-01-25

**Purpose**

This ECA is released for World Trade Use only.

**ECA075**

80-01-25

**Purpose**

This ECA is released for World Trade Use only.

## ECA076

EC839104  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER  
Obsolete Replaced By ECA101 81-10-16

### Purpose

MLM Update.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Basic	B/M5557369
-----	-----	S/38 prior to S/N 20144	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557369	0.4	0.0

### Prerequisites

None

### Companion

None

### Concurrent

None

## ECA077

EC839188  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-01-25  
SERVICE CODE 33  
79-12  
ROCHESTER  
Obsolete 86-06-16

### Purpose

Install cable guard on gate 01C.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548748 B/M2548815	60 Hz Power 50 Hz Power	B/M5557765
-----	-----	S/38 prior to S/N 20138	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M5557765	1.0	0.7

### Prerequisites

None

### Companion

None

### Concurrent

None

## ECA078

EC839216  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-01-25  
SERVICE CODE 33  
79-11  
ROCHESTER  
Obsolete 84-03-05

### Purpose

This ECA is for control purposes only. No field B/M will be shipped.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548934	3203 Diagnostics	

## ECA079

EC839139  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
80-01-25  
SERVICE CODE 33  
80-01  
ROCHESTER  
Obsolete Replaced By ECA115 81-10-16

## Select the ILA Entry to be Analyzed

INPUT										MOI
STATUS OF 3370 INTERIM LOGS										
LOG NUMBER	STATUS	OU	MACHINE CHECK	ERROR CODE	TIME	DATE	YY	MM	DD	
1	NEWEST	V	C1	0020	0250	04-15-03	10	55		
2		L	C1	0020	0250	03-31-03	10	20		
3	OLDEST	L	C0	0020	0250	03-10-03	00	00		
ENTER THE NUMBER OF THE INTERIM LOG TO ANALYZE <b>1</b>										
ENTER REQUESTED DATA ON PRESS CFS TO DISPLAY TEXT										
STEP	9	MAP ID	0310	DEVICE	INT LOG	OU		TYPE	INPUT	

## Select the Option to Run GMP

QUESTION										MOI
<ul style="list-style-type: none"> <li>THE INTERIM LOG NUMBER 1 STATUS V - UNLOADED INDICATES THE HEX 0020 MACHINE CHECK OCCURRED ON 3370-2.</li> <li><b>1</b> RUN THE GMP ON THE INDICATED ACTUATOR BY ANSWERING 'Y'.</li> <li>INTERIM LOG ERROR DATA MAY BE DISPLAYED/ANALYZED IF THE GMP DOES NOT DETECT A PROBLEM BY ANSWERING 'N' 050-001.</li> </ul>										
DO YOU WANT TO RUN THE GMP ON 3370-2										
OPTION	<b>Y</b>	Y/N, 1 DISPLAY TRACE, 8-DISPLAY TEXT								
STEP	10	MAP ID	3537	DEVICE	3370-2	OU	C1	TYPE	QUESTION	

## Display at Completion of GMP Run

GOTO MAP										MOI	
NO PROBLEM WAS FOUND ON 3370-2.											
ERROR DATA FROM INTERIM LOG IS AVAILABLE FOR ANALYSIS ON DISPLAY.											
REMOTE POWER INTERFACE TESTS RUN N Y YES, N NO.											
SEE TEXT ON HOW TO USE THE REMOTE POWER INTERFACE STATUS.											
<b>1</b> ENTER C TO ANALYZE OR DISPLAY THE INTERIM LOG ERROR DATA.											
GOTO MAP	MAP ID	3517	ENTRY POINT	ET							
OPTION	<b>C</b>	C CONTINUE, 1 DISPLAY TRACE, 8 DISPLAY TEXT									
STEP	50	MAP ID	3500	DEVICE	3370-2	OU	C1	TYPE	GOTO MAP		

Figure 12.

The following examples of display screens show the interim log option of selecting error data analyze from interim log. The circles indicate the option selected.

## Select Error Data Display from Interim Log

INPUT										MOI
- SELECT ONE OF THE FOLLOWING OPTIONS										
1 CANCEL										
2 ERROR DATA ANALYZE FROM INTERIM LOG										
<b>3</b> ERROR DATA DISPLAY FROM INTERIM LOG										
ENTER OPTION 1,2,3 <b>3</b>										
ENTER REQUESTED DATA ON PRESS CFS TO DISPLAY TEXT										
STEP	10	MAP ID	3537	DEVICE	3370-2	OU	C1	TYPE	INPUT	

## Display of First Screen of Error Data

COMPARE										MOI
FAILING F00 BYTES 0-7 C00E0000010947C0										
FAILING F00 BYTES 0-15 C102000000C0C000 - 051-240										
FAILING EMP F00 BYTES 0-15 C100005300C00000										
ERP TERMINATION CODE 00 - A35-125.										
ERROR RECOVERY RETRY EXHAUSTED										
3370 ERROR NOT RECOVERED										
ERROR APPEARS SOLID TO ERP										
OPTION	<b>C</b>	C CONTINUE, 1 DISPLAY TRACE,								
STEP	45	MAP ID	3505	DEVICE	3370-2	OU	C1	TYPE	COMPARE	

## Display of Second Screen of Error Data

COMPARE										MOI
UNIT CHECK - DEVICE HARDWARE 050-020										
ERROR CLASS 50 A35-170										
ERROR CODE 0250 A35-170										
ERROR LOG FORMAT CODE 1 050-020										
OPTION	<b>C</b>	C CONTINUE, 1 DISPLAY TRACE,								
STEP	01	MAP ID	3505	DEVICE	3370-2	OU	C1	TYPE	COMPARE	

Figure 13.

The following examples of display screens show the interim log option of selecting error data display from interim log. The circles indicate the option selected.

## Select Error Data Analyze from Interim Log

```

                                INPUT
- SELECT ONE OF THE FOLLOWING OPTIONS
1 CANCEL
2 ERROR DATA ANALYZE FROM INTERIM LOG
3 ERROR DATA DISPLAY FROM INTERIM LOG

ENTER OPTION 1,2,3 2

ENTER REQUESTED DATA OR PRESS CFS TO DISPLAY TEXT

STEP 30      MAP TO 3537 DEVICE 3370-2 DU C1 TYPE INPUT
  
```

## Display of FRU List

```

                                FIX
FAULT SYMPTOM CODE      S11F      MICRO-CONTROLLER CHECK      MD1
FRU LOCATION      PRIMARY FRUs      PROBABILITY
-----
3370 01AA1 02 - PROCES CARD      30%
3370 01AA1 F2 - PROM CARD      20%
3370 01AA1 H2 - SERDES CARD      15%
3370 01AA1 E2 - CTL1 CARD      12%
3370 01AA1 R2 - FCI CARD      10%
3370 01AA1 J2 - ECC CARD      00%
[ ] SEE THE TEXT FOR A SECONDARY FRU LIST.

OPTION [ ] C CONTINUE, T DISPLAY TRACE, S DISPLAY TEXT

STEP 4      MAP TO 3030 DEVICE 3370-2 DU C1 TYPE FIX
  
```

## Second Screen of FRU List

```

                                FIX
3370 01AA1 CONTROLLER BOARD TCC CROSSOVER CONNECTORS.      MD1
+5/0 VDC REGULATOR.
3370 VOLTAGES TO BOARD +20 V, -20 V, +12 V, -12 V, +5 V, -5 V.

OPTION [ ] C CONTINUE, T DISPLAY TRACE,

STEP 4      MAP TO 3030 DEVICE 3370-2 DU C1 TYPE FIX
  
```

Figure 14.

- B. The Pack Utility Maintenance Program (PUMP) has added a pack summary screen. This screen can be used as an aid for analyzing HDA problems.

The summary screen of a 3370 pack scan will be displayed at the completion of a scan. The display will indicate the physical location of errors and the heads involved.

An example of the summary screen is shown below:

```

                                SCAN DATA SUMMARY FOR 3370-1      P/S
CYLINDER RANGE HEADS- 100 CYL 0 100 CYL 1 100 CYL 2
0 1 2 3 4 5 6 7 8 9 10 11
0 - 99 - - - - - 1 - - - 1 - -
100 - 199 - - - - - - - - - - -
200 - 299 - - - - - - - - - - -
300 - 399 - - - - - - - - - - -
400 - 499 - - - - - - - - - - -
500 - 599 - - - - - - - - - - -
600 - 699 - - - - - - - - - - -
700 - 749 - - - - - - - - - - -
  
```

Figure 15.

- C. The 3370 error recovery procedure has been changed. Alternative assignments will be made on frequent recoverable read errors.

The assignments will be made to both ECC and recoverable data checks.

Here is a brief description of how alternative assignments work:

1. When an error occurs, the disk address of the error is compared to previous addresses that are stored in a rolling buffer.
  - a. If the address is present in the buffer, the system will assign it to an alternative if the error is recoverable.
  - b. If the address is not present in the buffer, the system will store the address into the buffer, and the oldest entry in the buffer will be removed. Each actuator's buffer will hold 20 entries in their rolling buffer.
- D. There have been significant improvements made to the Maintenance Analysis Procedures (MAPs). The changes are:

1. Hard Copy

MAPs have been revised to include maintenance tools for analyzing intermittent, as well as solid failures. The MAPs provide directions for using ILA, MSSD, PUMP, ELA, EREP, and SRCs.

Always start at the system entry MAP 0100 in order to obtain full advantage of these special instructions.

2. Soft Copy

MAPs have been revised to run the GMP in 3.5 minutes on each actuator. The reduction run time has been accomplished by stopping the blinking screens. An override option is available, but the run time will double.



**7**Rochester  
83-06-01**Changes to Installation Instructions for Release 5.0**

The purpose of this service aid is to emphasize the changes made to the 5381 Installation Instructions.

- A. A System/38 shipped from the factory comes with most of the machine configuration record already configured. To aid in the installation procedure, the "MCR Install" option is added to the SM1 primary menu. The system installation instructions tell you to run this service function to update specific fields. "MCR Install" examines the machine configuration record and presents a series of display prompts for the CSR to input data or update existing data. If, for example, a system printer is installed, a screen is displayed giving you the printer type, the OU number, and provides a field to enter the Image PN or name. The number of 3370 actuators is also displayed but cannot be updated using this service function. To update the number of 3370 actuators, use the "MCR Update" service function.
- B. The sequence of installation instructions is changed to facilitate cabling and reduce the number of power-down cycles. A flowchart is added to the basic subsystem checkout as an overview and an IAD coding aid.
- C. During installation, HST is used to verify correct operation of the system instead of the GMP on all devices, with the exception of the 3370s. It is a requirement that the GMP be run on the 3370s, and this time is recorded against the appropriate device serial number. HST is enhanced for Release 5.0. Refer to the IBM System/38 Service Guide, Section A01-522, for more information about HST.

**8**Rochester  
83-06-01  
Revised 83-09-21**Telecommunications/Work Station Controller Enhancements for Periodic 12, Release 5.0 CPF**

The following are new telecommunication enhancements available with Periodic 12, Release 5.0 CPF:

- A. DDSA High-Speed Remote  
No hardware changes. System/38 supports the connection of the DDSA external cable to a customer-provided high-speed (56K bps) channel service unit.

**B. V.35 High-Speed Interface.**

Permits the System/38 to communicate at 56K bps to a local/remote 3705/3725 Communications Controller. This feature consists of a new V.35 DLA logic card, new external communications cable, and two new wrap connectors. Maintenance on the V.35 High-Speed Interface is consistent with maintenance support for existing telecommunication features.

**C. 3270 Emulation (BSC only)**

This will be available to any System/38 having BSC telecommunications capability because support for 3270 Emulation is embedded in Release 5.0 VMC/CPF. The system/38 will appear as a 3271 Communications Controller to the host system. Any 5250 work stations (locally or remotely attached to the System/38) that are allocated to a System/38 3270 emulated telecommunications line will appear as 3270s to the host system. Check the various descriptors for "3270 EMUL \* YES" to determine if a device, line, etc., is in 3270 emulation mode.

To execute BSC link test, the line cannot be in 3270 emulation mode and will require host system support of the BSC RFTs. See the *Communications Attachment Theory-Maintenance Manual* for more information.

3270 Emulation requires one of the following ECAs: 159, 181, 183, 184, 185, 186.

**D. Advanced Program-to-Program Communications (APPC)**

No hardware changes. This permits the System/38 to communicate via SNA/SDLC protocol with another system having the same capability. The systems communicate on an equal basis (peer) although one system is designated the primary while the other system is designated secondary. Check the control unit descriptor for "TYPE \* PEER" or the device descriptor for "DEVTYPE \* PEER" to determine if a line is running under APPC. Also, whenever an APPC line is varied on, it will immediately attempt to establish communications with the remote system. Consult the *Data Communications Programmer's Guide* or the PSR for more information about APPC.

**E. Enhanced Error Recovery**

No hardware changes. With enhanced Error Recovery Procedures (ERP), the System/38 will automatically attempt recovery of many soft errors, thereby reducing operator intervention. Also, many operator messages will have possible cause and fix statements included with the problem descriptions. Use the help function with "DSPLINSTS" CL command to get the definitions of new status conditions.

**F. Network Problem Determination Application (NPDA) ALERT Support**

No hardware changes. Permits the System/38 to

send alerts to the supporting host system concerning the status of the System/38 application or devices. The host system then posts a message to its operator indicating the System/38 status. This requires the proper level of NCCF/NPDA support on the host system. NPDA support allows the System/38 to be consistent with other systems when connecting into a telecommunications network where alerts are an integral part of customer network problem determination.

The following are work station controller enhancements available with Periodic 12, Release 5.0 CPF:

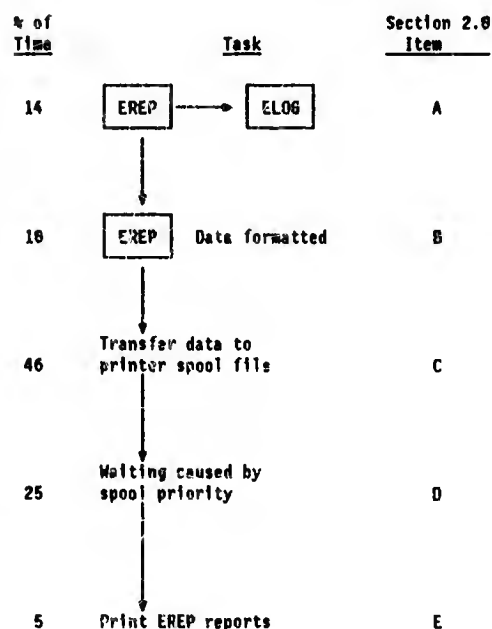
#### A. WSC-E (Extended)

One WSC-E supports a maximum of 32 devices attached to 8 ports. Additional ports are not supported, so ensure that this restriction is considered whenever a WSC-E is to replace an existing WSC with device interface expansion installed. Also, WSC-E does not support the 960 character displays (5251 Model 1, 5252).

WSC-E consists of two logic cards and is a RAM controller. The RAM controller is loaded at vary-on of the WSC-E or when GMP is initiated. There is a separate theory maintenance manual for WSC-E.

#### B. Personal Computer (PC) Attach

The IBM PC can attach via twinax to either a System/38 or to a 5251 Model 12 that communicates with a System/38. In either case, the IBM PC will appear as a 5291 display to the System/38. There are no changes to the System/38 maintenance package.



### 2.0 Tips and Techniques for Faster Printouts

- Search only the time period you want to see. Change the error log size (Option 7 under EREP) to the minimum size, 131K bytes. This will allow enough room for the last 500 to 800 errors. Since the error log wraps, the most current information is always kept. All new systems installed after Release 4.0 (EC 837990) have been set at the plant to this new size.
- Update systems with new releases of microcode. Performance improvements have been made in Release 5.0.
- Although some improvements have been made in the "spooling" area, this operation takes up a good percentage of EREP time. It is recommended that you spool the smallest report possible. For example, if you have been experiencing problems for the last two days, print a report for two days rather than a report for the last month.
- When the customer will allow, assign yourself a higher output priority by doing the following:
  - Sign on to CSM.
  - Select the "Command Entry" option from the primary menu.
  - Enter the command ----> CHGJOB OUTPTY (1).

This will put any CE spool files to the front of the output queue. This is for spooling only.

You can make the printer start immediately by entering the command ----> CHGPRTF QPCSMPT SCHEDULE (\*IMMED). This allows you to bypass waiting for the job to complete before printing starts.

**9**

 Rochester  
 83-11-16

## EREP Tips and Techniques

### Purpose

Briefly explain the operation of EREP and provide tips and techniques for getting EREP reports printed out faster.

#### 1.0 EREP Operation

- Two main factors affecting how much time is required for an EREP report are how busy the system is and the size of the report that is requested.
- The flowchart below shows the task involved in producing a large EREP report. Each step of the task is represented as a percentage of the total time. Percentages will vary depending on the size of the report. Helpful information about each step is given in section 2.0.

- E. The actual printing of the EREP reports is limited to the speed of the printer.

### 3.C Other EREP Tips

- A. Familiarize yourself with the use of the LSTERRLOG command.
1. Try to persuade your customers to issue this command once a day or once a week (use the time parameters). This is a way to get your customers involved in predictive maintenance and early problem determination.
  2. Since Release 4.1, a new report type has been defaulted to for LSTERRLOG. This report will give a "System Summary" report followed by the "Sub-system Summary" reports for those subsystems which have errors.
- B. For an error log summary by time, use Option 3 of EREP and display the report. Select the time range you want and press ENTER. The first screen that appears will be the System Summary for the time selected. The CF24 key can be used to print this or any screen.

### 4.0 Reference

- A. IBM System/38 Service Guide (Section 01-550)  
B. IBM System/38 Control Language Reference Manual

### Summary

Doing predictive maintenance can be time well spent at the customer account. EREP reports make it possible to see at a glance how your system is performing and helps you determine what actions should be taken in addressing potential problems. This is good account management.

Try to convince the customer that he should run LSTERRLOG on a regular basis. This is an excellent way that he can assist you in ensuring that minor problems do not become major problems.

**10**Rochester  
90-07-10

## 72MD Service Strategy

Announcing change in service strategy for the 72MD installed in the 538X.

### Machines Affected

5381, 5382

### General information

The new service strategy for the 72MD installed in 5381 and 5382 is to repair using subassemblies, rather than replace the entire unit. A technical information (TIF) message is displayed when ordering the entire 72MD to indicate that, when appropriate, repair measures should be taken before replacing the entire assembly. This will result in a significant cost reduction.

The head/carriage, ac drive motor, and the driver board can be successfully repaired in the field with little increase in customer engineer hours. Additionally, a head cleaning kit (P/N 4240740) is available.

To initiate the new repair strategy, the appropriate repair/replace procedures should be followed in the applicable system's Maintenance Information manual.

The following service checks and adjustments must be performed for head/carriage assembly replacement:

- Picker/cam bezel-to-carriage bed adjustment
- Picker/cam bezel-to-carriage bed service check
- Head load ball assembly service check and adjustment
- Carriage bed-to-drive service check
- Carriage bed-to-drive adjustment
- Picker rest sensor adjustment
- Head/carriage service check
- Head/carriage adjustment
- Picker extend service check
- Picker extend adjustment

### Available CE Education

- Field Instruction System (FIS) course code (CC) 77131 (62PC disk/72MD diskette for 5340): 4.0 hours
- Student self-study CC SR23-4996.

Use applicable Service Code.

Rochester  
90-10-23

### Diskettes—Read/Write Head Checkout/Cleaning

### Machines Affected

5381/5382

## General Information

The purpose of this Service Memorandum is to provide customer engineers with:

1. A consistent procedure to follow when a customer is experiencing repetitive read/write errors suspected to be caused by the customer's diskettes.
2. A procedure that verifies that the diskette drive is performing within IBM specifications.

**Note:** The following procedure must be followed to ensure all proper action has been taken to eliminate the possibility of the diskette drive's being the cause of the customer's read/write errors.

## Adjustments

Verify that the following are correct according to the Maintenance Information Manual:

1. Diskette drive adjustments
2. Read/write head alignment
3. Head load ball adjustment.

## Grounding/Power

Verify that the system and diskette drives are properly grounded, and that the diskette drive voltages are correct.

## Cleaning

The following procedure explains step-by-step how to clean dual-sided IBM diskette drive read/write heads.

**Warning:** Read/write head damage may occur if you do not adhere to the product recommended procedure. Review product documentation prior to using this procedure. If a resolution test is available, run it before and after cleaning the read/write head to check cleaning effectiveness.

1. Power-off the diskette drive.
2. Place the diskette drive in its normal service position (refer to product documentation).
3. Pour some drops of tape cleaner (P/N 8493001) or isopropyl alcohol (P/N 2200200) on a clean strip of printer paper or a comparable type of paper.
4. Carefully insert the paper between the unloaded heads.
5. Manually load the heads by actuating the ball assembly or head load assembly with your finger. Gently rub the paper between the head surfaces with a circular movement. Alternate between a clockwise and counterclockwise rotation.

**Warning:** Never load the head directly. Always actuate the heads by means of the ball assembly or the head load assembly; otherwise, head damage may occur.

6. Repeat step 5 with new paper strips until the paper comes out clean.
7. Insert a dry strip of paper to remove any excess fluid that may be on the read/write heads.
8. Reinstall the diskette drive into its normal operating position.
9. Power-on the diskette drive.
10. Initialize an IBM diskette. This ensures that all the excess fluid is removed.

## Diagnostics

Verify that all the diskette drive diagnostics run error-free.

## Verification Procedure

1. Obtain five new IBM diskettes.
2. Initialize each of the five diskettes three times. The diskettes must run with no more than two defective cylinders per diskette. If the diskettes pass this test along with the verification that all adjustments are correct, grounding and power is correct, and the diagnostics run error-free, but the customer is still experiencing read/write errors, IBM personnel should contact NSD management for further action.

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**ECA001**

EC836278  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete Replaced by 86-06-16

79-02-23|REV. 80-04-04  
 SERVICE CODE 33  
 79-02  
 ROCHESTER

**Purpose**

To eliminate false OV power checks caused by noise.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548990	50HZ-62PC 3/4 Power	BM4224072
	or B/M2548991	60HZ-62PC 3/4 Power	
	B/M2548993	50HZ-62PC 3/4 and 5/6 Power	B/M4224077
	or B/M2548994	60HZ-62PC 3/4 and 5/6 Power	
		S/38 prior to S/N 20019	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224072	1.0	0.8
B/M4224077	1.0	0.8

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

The 62PC power supply card is replaced. This card is replaced in both power supplies on machines with 3/4 and 5/6 features.

**ECA002**

EC815458  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete Replaced by

79-02-23|REV. 80-05-18  
 SERVICE CODE 33  
 79-02  
 ROCHESTER  
 ECA044 81-10-16

**Purpose**

To eliminate poor contact between Interposers and the 01A-B1 board caused by boards built with the wrong length pins.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3XX	B/M2548774	Basic	B/M4223851
		S/38 with S/N 10008, 10010, 20008, 20010, 20013, 20014 - 20016 20019 - 20051, and - 20054	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4223951	2.0	1.8

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

The 01A-B1 board is replaced.

**ECA003**

EC838286  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete Replaced by

79-02-23|REV. 80-04-04  
 SERVICE CODE 33  
 79-03  
 ROCHESTER  
 ECA101 81-10-16

SN28-9757-00 (Oct. 23, 1990) to S23J-9059-01  
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## Purpose

Update logics YA250 and YA310 to reflect greater than 1.0 meg memory power cabling.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M4224093

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224093	0.5	0.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA004

EC838270  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced by ECA066 81 10 16

79-02-23|REV. 80-04-04  
SERVICE CODE 33  
79-02  
ROCHESTER

## Purpose

To eliminate 255 line skip problem.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548876	5211/3282 1st position	B/M4224128
	and/or B/M2548781	5211/3282 2nd position	B/M4224129
		S/38 prior to S/N 20055	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224128	1.0	0.7
B/M4224129		

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

Replace 5211/3282 adapter card.

## ECA005

EC836372  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

79-03-09|REV. 80-04-04  
SERVICE CODE 33  
79-03  
ROCHESTER

## Purpose

To provide correct grounding to T1 transformer.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548883	Base Power	B/M4223997
		S38 prior to S/N 20075	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4223997	1.0	0.8

## Prerequisites

None

**Companion**

None

**Concurrent**

None

**Detail**

A star washer is added to the transformer mounting leg to improve contact with the machine frame.

**ECA006**

EC838350  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

79-03-23|REV. 80-04-04  
SERVICE CODE 33  
79-04  
ROCHESTER

**Purpose**

To prevent an overload of the CE convenience outlet XFMR.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548748	80 HZ Machine	B/M4224151
		S/38 prior to S/N 20094	

**Estimated Installation Time**

<b>B/M Installed</b>	<b>Service Hours</b>	<b>System Hours</b>
B/M4224151	1.0	0.7

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

The 7 AMP CB11 is replaced with a 3 AMP CB. Also new arc suppression assemblies are installed.

**ECA007**

EC838392  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

79-03-23|REV. 80-04-04  
SERVICE CODE 33  
79-02  
ROCHESTER

**Purpose**

To improve the power on reset signal.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548883	Base Power	B/M4224335
		S/38 prior to S/N 20055	

**Estimated Installation Time**

<b>B/M Installed</b>	<b>Service Hours</b>	<b>System Hours</b>
B/M4224335	0.7	0.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Replace the 01BA1C2 card P/N4176745 with P/N5564871.

**ECA008**

EC838130  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By

79-03-23|REV. 80-04-04  
SERVICE CODE 33  
79-04  
ROCHESTER

ECA115 81-10-16



## Purpose

To prevent false latching of Auto IMPL circuit.

## Machines, Features or Devices Affected

Type, Model, Stage	With E/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548976 or B/M2548977	Auto IMPL 60HZ Auto IMPL 50HZ S/38 prior to S/N 20090	B/M4224328

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224326	0.5	0.3

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

01BA1B2 is replaced with P/N5584687.

## ECA009

EC836294  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA101 81-10-16

79-03-23|REV. 80-06-13  
SERVICE CODE 33  
79-04  
ROCHESTER

## Purpose

To check for correct plugging of J2 or J3 on the phase loss PC Board and to update volume J of MLMs.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548991 B/M2548994 B/M2548960 B/M2548993	60 HZ 50 HZ S/38 prior to S/N 20094	B/M4224347 B/M4224348

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224347	0.5	0.2
B/M4224348	0.5	0.2

## Prerequisites

None

## Companion

None

## Concurrent

None

## ECA010

EC938487  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By ECA061 81-10-16

79-03-23|REV. 80-04-04  
SERVICE CODE 33  
79-03  
ROCHESTER

## Purpose

To correct SCA/Power controller interface problem which caused false power down status.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548883	Basic Power S/38 prior to S/N 20086	B/M4224333

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224333	0.8	0.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

The 01BA1D2 card is replaced by P/N5564769.

**ECA011**

EC836389  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 81-10-16

79-05-04|REV. 80-04-04  
 SERVICE CODE 33  
 79-02  
 ROCHESTER

**Purpose**

Remove use meters and install new CE Keylock Switch.  
 The CE switch is used to control the use meter on  
 metered I/O devices.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548954 B/M2548955 B/M2548956 B/M2548957 B/M2548958 B/M2548959	Rose colored covers Yellow colored covers Blue colored covers Gray colored covers Brown colored covers Green colored covers	B/M4224068 B/M4224103 B/M4224104 B/M4224105 B/M4224106 B/M4224107
-----	-----	S/38 prior to S/N 20055	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224068	2.0	1.6
B/M4224103	2.0	1.6
B/M4224104	2.0	1.6
B/M4224105	2.0	1.6
B/M4224106	2.0	1.6
B/M4224107	2.0	1.6

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA012**

EC836402  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete Replaced by ECA101 81-10-16

79-05-04|REV. 80-04-04  
 SERVICE CODE 33  
 79-04  
 ROCHESTER

**Purpose**

Provide updated power MAP reference pages for Vol A3  
 of MLM.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M4224382
-----	-----	S/38 prior to S/N 20095	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224382	0.5	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA013**

EC836490  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

79-05-04|REV. 80-04-04  
SERVICE CODE 33  
79-04  
ROCHESTER

**Purpose**

To add label to AC box.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548976 or B/M2548977	Auto IMPL 60 Hz	B/M4225054
		Auto IMPL 50 Hz	
		S/38 prior to S/N 20071	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225054	0.3	0.3

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA014**

EC837560  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

79-05-04|REV. 80-04-04  
SERVICE CODE 33  
79-06  
ROCHESTER

90-06-19

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**Purpose**

To add safety labels to Frame 02.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
XX3	B/M2541150	English	B/M4224407
XX5	B/M2541151	French	B/M4224408
	B/M2541159	German	B/M4224409
	B/M2541160	Italian	B/M4224410
	B/M2541161	Spanish	B/M4224411
	B/M2541169	Japanese	B/M4224412
	B/M2541170	Canadian/French & English	B/M4224413
	B/M4224551	Swedish	B/M4224414
	B/M4224552	Finnish	B/M4224415
		All S/38 prior to S/N20100	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224407	0.3	0.3
B/M4224408	0.3	0.3
B/M4224409	0.3	0.3
B/M4224410	0.3	0.3
B/M4224411	0.3	0.3
B/M4224412	0.3	0.3
B/M4224413	0.3	0.3
B/M4224414	0.3	0.3
B/M4224415	0.3	0.3

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA015**

EC837571  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By

79-05-18|REV. 80-04-04  
SERVICE CODE 33  
79-11  
ROCHESTER

ECA01 81-10-16

**Purpose**

To update Vol A3 of MLMs.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M4225576
		S/38 prior to S/N 20096	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225576	0.3	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA016**

EC837642 79-05-18|REV. 80-04-04  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 79-11  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced By ECA101 81-10-16

**Purpose**

To update Volumes A and J of MLM.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M4225151
		S/38 prior to S/N 20096	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225151	0.7	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA017**

EC836267 79-05-18|REV. 80-04-04  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 79-06  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete 86-06-16

**Purpose**

To restrain the 01B Gate for cable by adding a clamp.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548800	Basic	B/M4224389
		S/38 prior to S/N 20160	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224389	0.4	0.3

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA018**

EC837527  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

79-05-18|REV. 80-04-04  
SERVICE CODE 33  
79-07  
ROCHESTER

**Purpose**

To replace the motor guard on the 72MD.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548973	72MD-50 Hz Machine	B/M4224418
-----	-----	S/38 prior to S/N 20098	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224418	0.4	0.4

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA019**

EC837817  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By

79-08-15|REV. 80-06-13  
SERVICE CODE 33  
79-11  
ROCHESTER  
ECA101 81-10-16

**Purpose**

Update Volume J Power Logic to reflect 3370 Feature.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548748 B/M2548815	00 Hz 50 Hz	B/M4225149 B/M4225150
-----	-----	S/38 prior to S/N 20098	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225149	0.3	0.0
B/M4225150	0.3	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Replace Pages:

YA005	YA340
YA100	YA350
YA200	YA360
YA260	

**ECA020**

EC837508  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced By

79-08-03|REV. 80-04-04  
SERVICE CODE 33  
79-07  
ROCHESTER

ECA066 81-10-16

**Purpose**

To correct fire tier timing problem, replace 3262/5211 printer adapter card(s).

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548876 B/M2548781	First Printer Feature Second Printer Feature	B/M4225637 B/M4225638
-----	-----	S/38 prior to S/N 20099	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4225637	1.0	.7
B/M4225638	1.0	0.7

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA021**

EC836040  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

79-10-12|REV. 80-04-04  
SERVICE CODE 33  
79-08  
ROCHESTER

**Purpose**

Replace EF1 rect/cap asm #8, Transformer T3 and AC cap asm C1 with new level hardware.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548872 B/M2548741	01A-B2 Board Power 50Hz 01A-B2 Board Power 60Hz	B/M4224098 B/M4224099
-----	-----	S/38 prior to S/N 20099	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224098	3.0	2.5
B/M4224199	3.0	2.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**ECA022**

EC836446  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

79-10-12|REV. 80-04-04  
SERVICE CODE 33  
79-02  
ROCHESTER

**Purpose**

Update WSC driver receiver card to correct multiple microcode problems.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548758 B/M2548761 B/M2548765 B/M2548768	First Workstation Controller First Workstation Controller Ports 9-16 Second Workstation Controller Second Workstation Controller Ports 25-32	B/M4224178 B/M4224183 B/M4224349 B/M4224350
-----	-----	S/38 prior to S/N 20034	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4224178	1.0	0.5
B/M4224183	1.0	0.5
B/M4224349	1.0	0.5
B/M4224350	1.0	0.5

## Prerequisites

None

## Companion

None

## Concurrent

None

### ECA023

EC838190 79-10-12|REV. 80-04-04  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-08  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced By ECA122 81-10-16

## Purpose

Replace MFCU Adapter Card to fix problem of missing read data on first card of a read print operation.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548875	MFCU Adapter	B/M4224142
-----	-----	S/38 prior to S/N 20103	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4224142	0.7	0.5

## Prerequisites

None

## Companion

None

## Concurrent

None

### ECA024

EC838481 79-10-12|REV. 80-04-04  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-08  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced By ECA120 81-10-16

## Purpose

Replace workstation base adapter card to correct multiple microcode problems.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548753	First Workstation Controller	B/M4225914
	B/M2548783	Second Workstation Controller	B/M4225914
-----	-----	S/38 prior to S/N 20118	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4225914	0.7	0.5

## Prerequisites

None

## Companion

None

## Concurrent

None

### ECA025

EC833739 79-10-12|REV. 80-04-04  
MANDATORY SERVICE CODE 33  
AVAILABLE 79-09  
AUTOSHIPPED FROM ROCHESTER  
Obsolete 86-06-16

## Purpose

Install shields over cover latches to meet country safety specifications.

## Contents

5381/5382 SMs (FR A05, CD 1)

5381/5382 ECAs (FR B09, CD 1)

9335 SMs (FR C03, CD 2)

Index (FR C16, CD 2)



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**IBM**

**SMs/ECAs  
System/38**

S230-9059-01





Rochester  
82-04-07

## Analyzing 3370 HDA Damage

Analyzing and determining failure patterns of data check errors that indicate 3370 HDA damage.

### Purpose

Provide early problem detection and analysis of HDA damage indicated by excessive data checks.

### Procedure

Place the system in forced error logging mode via 3370 error log control (Ref MLM 01-578). This permits logging of all 3370 errors so a thorough monitoring can take place.

Have the system operator obtain 3370 error log information via LSTERRLOG \*ALLSUM on a weekly or biweekly basis. This log will establish a norm (average operating profile) for the 3370 drives. Time and date parameters of the LSTERRLOG command should span this weekly/biweekly period. If they don't, only a 24-hour period is reported. (Ref System/38 Control Language Reference Manual).

When an appreciable increase of data check errors indicate a change from the norm, the CE should be called upon to perform corrective action. The corrective action would be directed by normal maintenance procedures. The norm for one actuator could be much different than another. That is why establishing a norm is necessary.

If excessive data checks are causing a problem, the HDA may be suspected. The following information can be used for further interpretation of the error information.

There are two general categories of data check errors that can be associated with HDA failures:

1. Permanent
2. Temporary

1. **Permanent Data Checks** are the most serious because the data could not be read. These errors will generally require immediate attention. The error can be presented to the user as a damaged object and the object reloaded, or it could be presented as a machine check. Error codes associated with these types of errors can be:

601, 603, 605, 613, 615, 616

(Ref MLM 50-020)

2. **Temporary Data Checks** are not as serious as the permanent ones because the data was read and no

error is presented to the user. These errors, however, are logged in the Error Log and indicate the error activity associated with the disk drive. Monitoring this error activity is accomplished via the LSTERRLOG \*ALLSUM. Error codes associated with these types of errors can be:

601, 603, 605, 607, 609, 611, 613, 615, 616

(Ref MLM 50-020)

When viewing the errors, it would be normal to see a much lower number of 601, 603 and 605 errors than the others.

There are two ways to view data check error information:

1. Error Log (Figure 1 on page 2) Ref MLM 50-020
2. Pump (Figure 2 on page 2) Ref MLM 50-015

Note that they both provide the four most important ingredients for determining HDA problems.

1. Actuator (OU) Number
2. Physical Cylinder
3. Logical Cylinder
4. Head Number

There are three arms on each actuator and four heads on each arm. The term "logical cylinder" means "one of the three physical arms on an actuator." (Ref MLM 51-020).

## ERROR LOG REPORT

## ERE

## SCAN DATA STATUS OF 3370-1

Device: 3370 MLM: B50  
 OU: C0 Error Code: 0603  
 Date: 30:09:81 Time: 22:10:19 Error Class: Unit Check

Error Type: Temporary Recoverable Error

Cause: Data Check

Command: Read Data

Last FOB: C60E000001117000 C0022009916C0000 FSC:4944

Description: A data check, which was not ECC corrected in the ID or data field in a primary block, was sensed during a read operation.

Variable Data: 00000000

## B AND DSTAT:

BSTAT0 02 BSTAT1 00 DSTAT 50 MESSAGE 00  
 00000010 00000000 01010000 00000000

CTL Tag OE BusOut 0A BusIn 10 Expected 06  
 00001110 00001010 00010000 00000110

## BUFFER PRIMARY ID AREA

Last Block 00 Sector (Last RPS) 10 Residual K-Byte 04  
 Disk ID 0991A80000

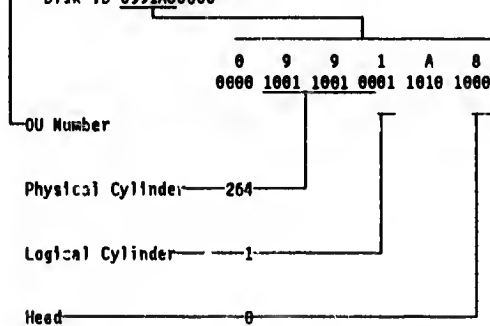
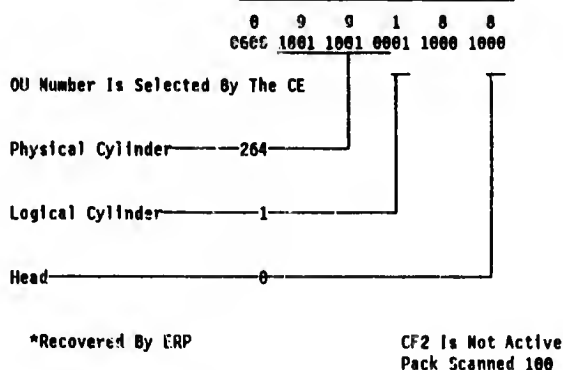


Figure 1. Example of Errors from EREP

Note: The format of the ID shown is for the more common type of errors (603, 609, 616). Use the alternative physical ID format (Ref MLM 51-315) for all other data check errors.

The last FOB indicates the original failing command. The disk ID indicates where the failure actually occurred during error recovery.

ADDRESS	ERROR CODE	DESCRIPTION
* 00 2E 62	0609	ECC Corrected Data Check
09 91 8A	0603	Not Corrected Data Check-Data



Percent

Pack Scan Complete - Press Enter to Return to Pump Menu

Figure 2. Example of Errors from Pump Scan

There are three types of HDA failures that can be diagnosed via EREP and/or pump. The failures can be determined by using the addresses of the errors and establishing their failure pattern. The failures and their patterns are shown in the following three figures:

#### 1. Arm on an Actuator (Logical Cylinder)

When errors at various addresses (Figure 3 on page 3) indicate the same logical cylinder, the problem is associated with an arm on an actuator and replacement of the HDA should be considered.

FOB BYTES	11	12	13
ADDRESS	00	01	7D
"	00	19	F3
"	01	C5	4C
"	03	A9	38
"	04	A9	2A
"	05	69	26
"	06	95	38
"	06	FD	AD
"	08	2D	72
"	0A	35	26
ALL ERRORS ARE ON LOGICAL CYLINDER 1			XX01

Figure 3. FOB Data Obtained from Pump Scan

## 2. Head

When errors at various addresses (Figure 4) indicate the same head on the same logical cylinder, the problem is associated with a single head and replacement of the HDA should be considered.

ID BYTES	1	2	3
DISK ID	01	C8	23
"	02	0C	83
"	04	A0	CB
"	05	68	27
"	06	34	7B
"	06	9C	9B
"	07	20	7B
"	09	14	0F
"	0A	A4	4F
"	0A	F4	6F
ALL ERRORS ARE ON LOGICAL CYLINDER 0		XX00	XX11
HEAD 3			

Figure 4. Disk ID Data Obtained from EREP

## 3. Surface Scratch (Across the Radius)

When errors at various addresses (Figure 5 on page 4) indicate the same head on the same logical cylinder but different physical cylinders, the problems may be associated with the surface and assignment of alternatives should be considered. If further monitoring indicates damage is continuing, replacement of the HDA should be considered.

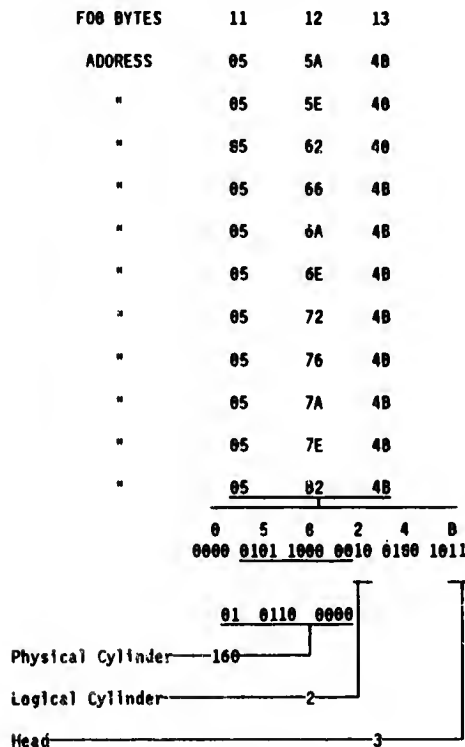


Figure 5. FOB Data Obtained from Pump Scan

### Summary

If a 5381 service call is originating from an 0818 machine check, always use the address of the failing FOB for determining the OU number, physical cylinder, logical cylinder, and head for pinpointing the failure (Figure 6). This failing address must be used as part of the data for determining failure patterns because it is the location of the error you are trying to correct.

**Note:** Only permanent errors can cause machine checks and/or messages to the user that an object is damaged. Temporary errors are only logged.

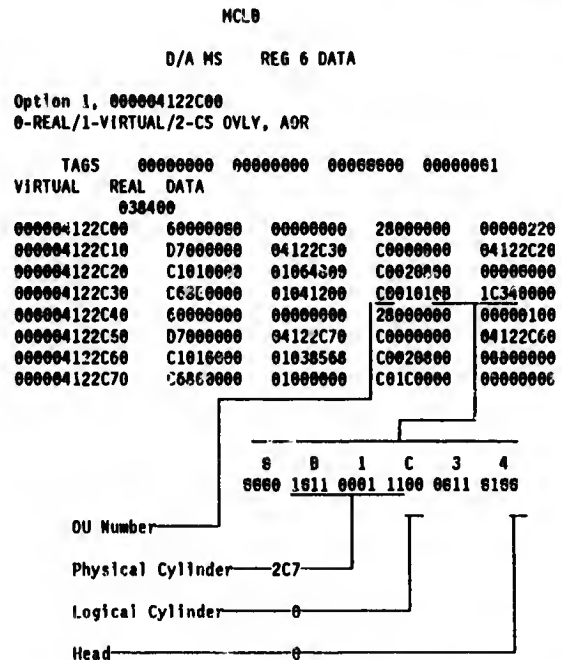


Figure 6. Base Register 6 Failing FOB (MAP Reference 35-150)

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 Rochester  
 82-06-02  
 Revised 82-10-20

### Machine Check Analysis and System Reference Code

The 5381 service strategy is being enhanced by the release of an SCA card that will perform a Machine Check Analysis (MCA) at the time of failure. When possible, the SCA will present an eight-character System Reference Code (SRC) on the console screen. An SRC can also be derived from hardware error codes that appear in CPF error messages and from the system console indicators (LEDs).

The customer will be directed by a revised Problem Determination Guide (Form SC21-7876) to gather the information needed, record it, and report the SRC when placing a service call. An SRC microfiche cross-reference card will also be released to allow the CSR to identify the probable failing FRUs from the SRC. The following types of information will be provided:

- Failing feature or device
- Probable failing FRUs with percent of probability
- FRU part number
- Need for programming support
- References to the maintenance package

This information will allow the CSR to determine what service action is required and what parts should be taken on the service call. Additional instructions for using the SRC cross-reference are contained on the microfiche card.

The implementation schedule is as follows:

- A. All Model 7s incorporate MCA.
- B. Models 3, 4, and 5 with SCA card PN4202410, Serial Number 23577 and above, will perform MCA after installation of Periodic 11 (EC 837990) which is scheduled for September 1982.
- C. The SRC microfiche cross-reference card will be available via SLSS subscription by specifying Type 5381 with Subject Code 79 (Maintenance Manual) or by specifying Form S2B9-8165. The initial copy will be autoshipped to those presently receiving Form S2C0-7308 (5381 ECA/SA).
- D. A/FE / E/ME/A Distribution - The SRC Cross-Reference Guide will be released in hard copy and included in the machine documentation.

This enhancement will improve system availability to the customer through a reduction in parts travel, diagnostic time, and NTFs. It is intended to supplement the basic maintenance strategy by providing a preanalysis of system problems.

**3**

Rochester  
82-08-02  
Revised 82-10-20

## Installation, Verification, and Problem Determination for the Communications Attachment

### Purpose

Provide a procedure for adding, removing, or modifying the communications attachment, highlighting those steps necessary to install and verify correct operation of the communications feature. Also provide a standard approach to System/38 communications problem determination.

### Install/Remove

#### Procedure:

- A. Install or remove hardware as instructed by the communications FFB/Ms.
- B. Update the MCR using the MCR update function under SM1. (Refer to Service Guide 01-526)
  - 1. Adding may require an update of the subsystem common data and the subsystem line data.
    - a. Add communications for the first time

- Update common and line data
- b. Add new line
  - Update line data only
- c. Add SDLC/BSC control
  - Update common data only

- 2. Removing or modifying requires an update of the subsystem line data only.

- a. Remove a line
- b. Modify by changing connection type, line speed, or modem

Adding communications for the first time requires that certain steps are followed closely. This will ensure that the proper diagnostic microcode is loaded on to the system.

- C. Use SLV Update Patch (feature update) to add the communications feature microcode.
  - 1. If the periodic level of the SLV diskettes is the same as the MES diskettes, do a normal feature update.
  - 2. If the periodic level of the SLV diskettes is lower than the communications MES diskettes, apply the periodic ECs necessary to bring the SLV up to the same level as the MES diskettes, then add the feature microcode.
  - 3. If the periodic level of the SLV diskettes is higher than the MES diskettes, use the override option of SLV Update Patch to install the feature microcode. Reinstall the periodic ECs to the SLV beginning at the next higher level than that marked on the MES diskettes. Also reinstall all interim and hardware ECs.
- D. Bring up S\*11 and select the link/load service function. Link/load the SLV using the load all microcode option.

The system now has the correct microcode to support communications. The MCR informs the system of the physical hardware installed and the functions it can perform. Since the MDIs check all installed hardware, it is important that the MCR is correct before diagnostics are run.

### Verification

There are three descriptions which must be created for each line installed before complete diagnostics and customer jobs will run.

#### Procedure

- A. Bring up CSM and select the command entry option.
- B. Create the proper descriptions for all installed lines.
  - 1. Create line description (CRTLIND), Figure 7 on page 7.
  - 2. Create control unit description (CRTCUD), Figure 8 on page 8 and Figure 9 on page 9.



3. Create device description (CRTDEVD), Figure 10 on page 10.

After the proper descriptions have been created, the system is now ready to run communications MDIs.

- C. Run communications MDIs including switched connection checkout and link test.
  1. SDLC link test to remote 5251-12.
  2. BSC link test to Raleigh.

Refer to TMM 30-220.

#### Special Case

A common field situation is one in which the communications EIA feature is installed but part of the network is missing (modem or line not installed). The switched connection checkout or link test cannot be run. However, a complete checkout of the communications attachment can be performed.

- A. Ensure that the entry in the MCR, "Diagnostics can run to modem," is answered "no."
- B. Create the line description as required with the following unique entries:
  1. Type: \*SDLCS or \*BSC
  2. CNN: \*PP
  3. OEMMDM: \*Yes
- C. Run communications MDIs.
- D. Select the cable wrap option when prompted.
- E. Run MDIs to normal end.

Each communications feature code has a unique line description similar to that shown in Figure 7 on page 7 for FC 3791.

Use the line description that matches the feature code being installed. Refer to the Service Guide, Appendix B.

\*Figures 7, 8, and 9 are examples taken from the Release 4 Service Guide. There may be changes to the parameter entry options from one release to the next. See the Service Guide for current parameter options.

## CPF LOAD AND CONFIGURE

### Communications Line Description PC 3701 - EIA/CCITT

This line description is used to describe a switched line or nonswitched line. A control unit description and a device description must be created. See 01 - 820, part 16, 18, or 17.

1. Enter the parameters shown in the entry column **A**.
2. Enter the parameters **B**. You must get those parameters from the customer. See the line description parameter table on 01 - 568, part 2 for aid in describing the parameters.
3. All other entries (not shown on this line description work sheet) are defaults.

LINE DESCRIPTION WORK SHEET			
Description	Parameter	Entry	
Name of the line.	LIND	<b>A</b>	
Number that identifies the line.	LINBR	<b>A</b>	
Type of line.	TYPE	<b>A</b>	
Type of line connection.	CNN	<b>B</b>	
<b>Connection Type</b>	<b>Entry</b>		
Switched	*SWT		
Nonswitched	*PP		
Point-to-point			
Non-switched Multipoint	*MP		
The line data rate in bits per second (1200, 2000, 2400, 4800, 7200, or 9600).	RATE		
Switched network backup feature is on the nonswitched line modem (*NO or *YES).	SWNBKU	<b>B</b>	
Data rate select feature is on the nonswitched line modem (*NO or *YES).	SELECT		
Nonreturn to zero inverted transmission decoding method is used.	NONRTNZ	<b>A</b>	
Clocking function for the line is provided by the System/38 (*NO or *YES).	CLOCK		
Autoanswer feature is installed (*NO or *YES).	AUTOANS		
Answer tone signal is provided by the System/38 (*NO or *YES).	ANSTONE		
The physical connection is by 2-wire or 4-wire link (2 or 4).	WIRE	<b>B</b>	
Normal.			
Backup.			
Non IBM-supplied is used (*NO or *YES).	OEMMDM		
The speed at which the line operates (*FULL or *HALF) must equal remote speed.	RATETYPE		
The line is to be varied online when the system is started.	ONLINE	<b>A</b>	*NO
Host address. Used with a secondary line (*SDLC or *BSC). See 01 - 566 (Part 6).	STNADR	<b>B</b>	

Subsystem 1		Subsystem 2	
Entry		Entry	
SS1Line0		SS2Line0	
SS1Line1		SS2Line1	
SS1Line2		SS2Line2	
SS1Line3		SS2Line3	

Subsystem 1		Subsystem 2	
Entry	Line Number	Entry	Line Number
20	0	60	0
21	1	61	1
22	2	62	2
23	3	63	3

Entry	Line Type
*SDLC	Primary
*SDLC	Secondary
*BSC	BSC
*BSC	BSC Multipoint tributary

Entry	
*Yes	SDLC
B (blank)	BSC, BSCT

Enter for switched networks only. Otherwise blank

Figure 7.

**CPF LOAD AND CONFIGURE**
**Communications Control Unit  
Description (Switched Networks)**

A control unit description and a device description must be created for each line description. See work sheet below and on 01 - 820, part 17.

1. Enter the parameters shown in the entry column **1**.
2. Enter the parameters **2**. You must get these parameters from the customer.
3. All other entries (not shown on this line description work sheet) are defaults.

This assumes a controller station address 01 01 for a 5251 Model 2 or 12 (see 01 - 588, parts 8 and 9).

Device Type Entry	Model Entry	Control Unit Address Entry	
		Controller Station Address (Digits 1 and 2)	OU Number (Digits 3 and 4)
5251	2 = 960 characters 12 = 1920 characters	Switch setting 01 (see note)	00 = Switched
*PU2	0	00	
*BSC	0 1 = RUE		
*BSCT	0		

Subsystem 1		Subsystem 2	
Entry	Line Number	Entry	Line Number
SS1CUD0	0	SS2CUD0	0
SS1CUD1	1	SS2CUD1	1
SS1CUD2	2	SS2CUD2	2
SS1CUD3	3	SS2CUD3	3

CONTROL UNIT DESCRIPTION WORK SHEET			
Description	Parameter	Entry	
Name of the control unit.	CUD	<input type="text"/>	
Control unit type identifier.	TYPE	<input type="text"/>	
Model number of the control unit.	MODEL	<input type="text"/>	<b>A</b>
Address of the control unit.	CTLADR	<input type="text"/>	
Attached to a switched line.	SWITCHED	<input type="text"/> *YES	
The data rate select feature is installed (*NO or *YES).	SELECT	<input type="text"/>	<b>B</b>
Telephone number (4 to 16 digits) of the control unit.	TELNR	<input type="text"/>	
Method to be used to make the initial connection between the System/38 and the control unit.	INLCNN	<input type="text"/>	<b>A</b>
Hexadecimal value (8 characters) used to identify the control unit on *SDLCP line 020000xx;xx must reflect the setting of the controller station address switches on the 5251.	EXCHID	<input type="text"/>	
Remote identification list (BSC switched lines only) 2 to 15 characters in length specifying up to 32 identifiers of remote BSC control units.	RMTID	<input type="text"/>	<b>B</b>
Hexadecimal value (12 characters) used to identify a control unit description, which is the system services control point identification of the host (SDLC only).	SSCPID	<input type="text"/>	
The control unit is to be varied online when CPF is started.	ONLINE	<input type="text"/> *NO	<b>A</b>
List of line names that identify the lines that can be connected to this control unit.	LINLST	<input type="text"/>	

Enter a valid phone number

\*ANS System/38 answers a call coming in.  
\*CALL System/38 operator calls the remote location.

Entry	Line Type
02000001	SDLCP (see note)
*None	SDLC, PU2, BSC, or BSCT

Subsystem 1		Subsystem 2	
Entry	Line Number	Entry	Line Number
SS1Line0	0	SS2Line0	0
SS1Line1	1	SS2Line1	1
SS1Line2	2	SS2Line2	2
SS1Line3	3	SS2Line3	3

Figure 8.

## CPF LOAD AND CONFIGURE

### Communications Control Unit Description (Nonswitched Networks)

A control unit description and a device description must be created for each line description. See work sheet below and on 01 - 820, part 17.

1. Enter the parameters shown in the entry column **A**.
2. Enter the parameters **B**. You must get these parameters from the customer.
3. All other entries (not shown on this line description work sheet) are defaults.

This assumes a controller station address of 01 for a 5251 Model 2 or 12 (see 01 - 588, parts 8 and 9).

Device Type Entry	Model Entry	Control Unit Address Entry				
		Controller Station Address (Digits 1 and 2)	OU Number (Digits 3 and 4)			
5251	2 = 960 characters 12 = 1920 characters	Switch setting 01 (see note)		SS1	SS2	
			Line 0	20	80	
			Line 1	21	81	
			Line 2	22	82	
			Line 3	23	83	
*PU2	0	00				
*BSC	0 1 = RJE					
*BSCT	0					

Subsystem 1		Subsystem 2	
Entry	Line Number	Entry	Line Number
SS1CUD0	0	SS2CUD0	0
SS1CUD1	1	SS2CUD1	1
SS1CUD2	2	SS2CUD2	2
SS1CUD3	3	SS2CUD3	3

CONTROL UNIT DESCRIPTION WORK SHEET			
Description	Parameter	Entry	
Name of the control unit.	CUD		
Control unit type identifier.	TYPE		
Model number of the control unit.	MODEL	<b>A</b>	
Address of the control unit.	CTLADR		
Name of the nonswitched line to which this control unit is attached.	LINE		
The data rate select feature is installed (*NO or *YES).	SELECT	<b>B</b>	
Hexadecimal value (8 characters) used to identify the control unit on *SDLC line (020000xx;xx mur.l reflect the setting of the controller station address switches on the 5251).	EXCHID	<b>A</b>	
Hexadecimal value (12 characters) used to identify a control unit description, which is the system services control point identification of the host (SDLC only).	SSCPID	<b>B</b>	
The control unit is to be varied online when CPF is started (*YES or *NO).	ONLINE	<b>A</b>	*NO

Subsystem 1		Subsystem 2	
Entry	Line Number	Entry	Line Number
SS1Line0	0	SS2Line0	0
SS1Line1	1	SS2Line1	1
SS1Line2	2	SS2Line2	2
SS1Line3	3	SS2Line3	3

Entry	Line Type
02000001	SDLC (see note)
*None	BSC, BSCT, SDLCs

Figure 9.

Device Type Entry	Model Entry	Device Address Entry		
		Unit Address (Digits 1 and 2)	Controller Station Address (Digits 3 and 4)	OU Number (Digits 5 and 6)
5251	1 = 960 characters 11 = 1920 characters	00 or 02-09 (see note)	Switch setting 01	00 = Switched Nonswitched:
5252	1 = 960 characters			
*PLU1	0			
*BSC	0 1 = RJE			
*BSCT	0	00	00	
				661 662
				Line 0 20 60
				Line 1 21 61
				Line 2 22 62
				Line 3 23 63

## CPF LOAD AND CONFIGURE

### Communications Display Device Description (Switched and Nonswitched Networks)

This description is used to describe all switched and nonswitched features attached to System/38. It does not completely describe the work station attached, but gives the system enough information to run the MAPs and tests.

A display device description does not need to be created to run the MAPs for BSC or a BSCT line.

Subsystem 1		Subsystem 2	
Entry	Line Number	Entry	Line Number
SS1DEVD0	0	SS2DEVD0	0
SS1DEVD1	1	SS2DEVD1	1
SS1DEVD2	2	SS2DEVD2	2
SS1DEVD3	3	SS2DEVD3	3

DISPLAY DEVICE DESCRIPTION WORK SHEET			
Description	Parameter	Entry	
Name of the display device.	DEVD		
Physical address of the device.	DEVADR		
Device type.	DEVTYPE		
Device model.	MODEL		
Name of associated control unit. If the device is located inside the control unit, the control unit and the device must be described separately.	CTLU		
The device is to be varied online when the system is started (*NO or *YES).	ONLINE	*NO	

Subsystem 1		Subsystem 2	
Entry	Line Number	Entry	Line Number
SS1CUD0	0	SS2CUD0	0
SS1CUD1	1	SS2CUD1	1
SS1CUD2	2	SS2CUD2	2
SS1CUD3	3	SS2CUD3	3

Figure 10.

**Problem Determination**

TP is an area in which problem determination can be a difficult task for both the customer and the CE. To help address this problem, the System/38 incorporates built-in service aids which, along with supporting documentation, enhances user and CE ability to diagnose complex TP problems. These service aids are outlined as follows in the order in which they should be used:

**A. Customer Problem Determination Procedures (PDPs)**

1. Should be run by the customer as directed by the PD Guide (Form SC21-7878).
2. Information about the failure is provided through completion qualifiers (refer to TMM 30-230, Part 18).

**B. Communications MDIs**

1. For single, solid failures, run MDIs.
2. MDIs will direct you to semidirected procedures via hard-copy MAP 5847.
  - a. MAP 5847 (Vol A4) lists all communications error codes and possible causes.
  - b. MAP 5847 can also be used as a reference to help isolate possible causes for intermittent problems.
3. Modem self test is initiated by MDIs (LPDA MAP 5848) for 3863, 3864, and 3865 external modems.
  - a. Controlled by the MCR entries "Special diagnostics required" and "diagnostics can run to modem." These two entries must be answered "yes."
  - b. MDIs only run to IBM modems.
  - c. Modem LPDA switch (S1-5) must be in the up position.
4. MDIs will initiate a link test, if selected, only after the basic attachment hardware test has run successfully.
  - a. Link test is only initiated through MDIs for SDLC lines.
  - b. BSC link test must be run under communications utilities.
  - c. Remote modem self test (remote LPDA link test) is automatically initiated for 3863, 3864, and 3865 external modems if the MDI link test fails.

**C. Communications utilities should be used for highly intermittent problems in an attempt to recreate or trap the failure.**

1. Link test (refer to TMM 30-220).
  - a. Run concurrent with customer jobs on the same line (SDLC only).
  - b. BSC to the Raleigh Test Center must run with dedicated line.
    - A successful test to Raleigh verifies that the communications hardware is

functioning correctly. If problems persist, suspect application program, line, or remote end problems.

- Isolate line, application program, or remote end problem.

**2. COMMTRAP (refer to TMM 30-220).**

- a. Monitors the data lines at the DLA input to the CA card.
- b. Trap customer data or link test data for failure analysis.
- c. Used with SDLC or BSC lines.
  - Data presented in different formats to aid in analysis.
  - Records all BSC, SDLC, or SNA data that passes through the communications attachment and can be used to determine whether the problem is hardware or software.

**3. Support tools.**

- a. PT-2 or datascope is used to aid in identifying possible line or modem failures causing highly intermittent problems.
  - Monitors the line data at the modem.
  - Traps or displays raw line data for failure analysis.
  - Different display formats to aid in analysis.

**4. CSNAP (refer to TMM 30-222).**

- a. Records all line activity for each line installed providing information on line utilization, retries, and error rates.
- b. Aids in identifying line problems by providing comparisons to other lines on the same subsystem.
- c. Provides short-term analysis to record problem periods when line failures are high.
- d. Can be used for fix verification or trend analysis.

**Summary**

When installing communications features, remember that the MCR is the most important element in ensuring that the proper microcode is loaded on to the system. The MCR describes what the communications hardware is capable of doing and must be correct if diagnostics are to run successfully.

The line, control unit, and device descriptions inform the system of how the communications hardware will be used by the customer. They must be correct if the customer jobs are to run.

Problem determination is made easier by using a standard approach to communications problems. Allow the system and its maintenance package to direct you to the proper action. Record all errors and messages

relating to the failure and use the appropriate maintenance tool. Become familiar with the communications problem determination aids, MDIs, MAPs, utilities, and support tools. System/38 TP problem determination will become easier the more these service aids are used and understood.

4

Rochester  
83-02-23  
Revised 83-11-16

## Engineering Changes

The purpose of this service aid is to define and explain 5381 Engineering Change terms.

- CPF (Control Program Facility) is supplied directly to customers from PID in the form of numbered releases (e.g., 4.0, 4.1, 5.0, etc.). This program is usually referred to as "Release 4.1" or "Release 5.0." The word "release" infers "release level" of CPF.
- Periodic ECs are supplied by Rochester as numbered levels of HMC and VMC (e.g., 8, 9, 10, etc). New periodic EC shipments are timed to coincide with PID's shipment of new CPF releases.
- New periodic ECs will function with lower-level CPF releases (e.g., Periodic 10 works with CPF Release 3.0).
- While generally each "CPF" release corresponds to a specific "periodic" EC, this correspondence is not mandatory because each new periodic will function with the previous CPF (e.g., Periodic 10 works with CPF Release 3.0).

Periodic ECs are shipped in two stages. First the periodic EC diskettes are shipped to the designated support people in the branch office. Each periodic diskette FBM contains enough diskettes for five CSRs to receive a complete set. (Correct quantities are determined by the branch office and communicated to Service Planning. Service Planning controls the shipping list.)

Secondly, the Installation Instructions are sent to each machine through the Plant Machine Level Control (MLC) system.

Periodics should be written off by their designated ECA number on an IAD (when installed) after the instructions have been received at the customer site. ECAs written off before the instructions arrive at the customer site may not process in MLC as installed.

- Interim ECs are released in ascending alpha suffix order to provide fixes to the base periodic (e.g., 837989 no suffix is base, 837989B, 837989C).

Interim ECs are available through the Rochester PTF network and, in addition, a copy is shipped to the designated branch office support people.

Interim ECs should be installed as preventive measures when in a customer account. Special trips should be made only when necessary.

Write off Interim ECs on an IAD using the ECA number of the periodic EC. Identify "Interim B, C, D, etc." in the comments.

- ECs released "For MES Orders Only" are changes required as a prerequisite for a particular feature but are not required for the total inventory. These ECs are controlled by MLC and cannot be ordered by the field. Prereq ECs will be shipped automatically if triggered by an MES order.
- The correct sequence for installing ECs is ascending ECA number order (e.g., 153, 154, 155). This method ensures that you will not run into prereq problems.
- Install shipped ECAs before an MES unless you are directed otherwise by the MES.
- MLC record corrections for ECA activity can be made by using an IAD. Use the comments section to describe the situation you wish to correct (e.g., activity code 03 - this ECA previously installed).
- MLC record corrections for MES activity can be made only by the branch office using "Record Purpose Only" MES changes. IADs do not install or remove machine features. MLC uses the IAD to track record errors; describe the situation fully in your comments (e.g., record correction activity code 05, received "B" memory cards; need "A" memory cards). This action supports RPO requests, (Record Purpose Only).
- If in researching a record problem on an MLC machine history, an EC or ECA omitted from the string should be considered installed. ECs on a machine history print out in "install" order beginning with the first uninstalled EC. Therefore, if an early EC does not show, it is installed. Example:

### ECA HISTORY SECTION

ECA	EC NO.	ECA STATUS	
123	837982	To Be Added	(ECA 122 and
124	840944	Not Required	below are
125	841003	Installed	installed)
127	840880	Installed	
128	839532	Installed	
129	839201	Installed	
130	837983	Installed	
131	841063	Not Required	
132	841048	Not Required	
133	841011	Not Required	
134	840940	Installed	
135	841070	Installed	(ECA 136 is
137	839437	Installed	installed)
138	840889	Installed	
139	840339	Installed	
140	841127	Not Required	
141	839202	Installed	
142	841019	To Be Added	



- Branch office support documentation is sent to designated support people by MLC through the same mechanism that sends periodic and interim ECs. Quantities are controlled by the branch office requirements through Service Planning.
- Prepack B/Ms, as referenced on some MES installation instructions, are groups of hardware "prepackaged" and stocked by the plant. Filling an order for one prepack B/M has less exposure to error than the ordering of numerous small parts. The parts content of a "prepack" B/M is included with the MES documents as well as inside the "prepack" box.
- Diskettes included with an MES are listed as an FB/M number. The EC level will be that or the latest periodic. In addition, diskettes will be labeled 1 of 1 or 1 of 2, or 2 of 2, etc.
- FB/Ms are "Field Bills of Material" and are released by ECA. FB/Ms are fixes to the product.
- FFB/Ms are "Field Feature Bills of Material" and are released through an MES. FFB/Ms add or delete features.
- Status 3 customers must order all engineering changes through the local service branch office. The customer receives the installation instruction only. The installing CSR uses his own set of code diskettes.

You can assist in maintaining DE quality by ensuring the DEs are always handled with care. They must always be shipped and transported in the original shipping container and protective packaging. This is important when returning the DEs to the Rochester plant. The DE is a valuable asset in that it will be repaired and reused. It is also important that when failure analysis is done on the returned DEs, it is performed only on those failures that occurred at the account and not distorted by shipping damage. Completing the "DE Return Form" shipped with all new DEs will aid in doing failure analysis.

Your cooperation in handling of the disk enclosures will greatly assist in maintaining DE quality.

Rochester  
83-06-01

**6**

## Diagnostics Aids for 3370 Problems

### Purpose.

To provide an awareness of changes that have been made to the System/38 3370 service tools prior to and included in Periodic 12.

### Description

The following four changes were made to the System/38 3370 service tools prior to Periodic 12:

- A. Five new machine checks were added to assist in localizing machine check failures. They are:
    - 1. 0828 3370 adapter check.
    - 2. 0829 Adapter or controller (not drive).
    - 3. 082A Controller or drive (not adapter).
    - 4. 082B Drive error.
    - 5. 082C 3370 cannot communicate with the SCA (powered the drive off during error recovery but cannot turn the drive back on because communications with the SCA has stopped and cannot continue).
  - B. Log 3370 machine checks to 62PC and copy them to the system error log on a successful IPL.
    - 1. The error data in the log can be concurrently diagnosed using error log analysis (ELA).
  - C. A change has been made to the system error recovery procedures to reduce the number of permanent machine checks. This change will also assist in diagnosing intermittent machine check errors.
- The error recovery will now include powering down and up the 3370s on potential machine check errors.

**5**

Rochester  
83-04-20

## Disk Enclosure

The purpose of this service aid is to emphasize the handling and shipping of disk enclosures.

It is important that the disk enclosure (DE) is handled and shipped in its original protective packaging and shipping container. This includes all phases of handling and shipping; ie, from the plant to the distribution center, the distribution center to the customer location, the customer location back to the branch office, and the branch office back to the plant.

When the DE packages are designed, protection of the DE is the prime consideration. These units are very fragile and must be protected when transporting. Fragility is measured in units of acceleration or "Gs". The more "Gs" an object can stand, the less protection is required for shipping and handling. For example: An egg commonly considered very delicate can withstand about 60 "Gs". In contrast, some DEs cannot withstand more than 15 "Gs". This contrast is provided to illustrate the handling fragility of the DE unit. When in the shipping package or securely installed in a machine, the sensitivity of the unit is well protected.



After power-up, normal error recovery procedures continue to complete the operation.

1. If error recovery is successful, the error information is placed into the system error log and normal system operation continues.
  2. If error recovery is not successful, the system will machine check.
- D. Put cylinder and head in decimal format on displays of EREP, PUMP, and MSSD.
1. This eliminates the need for decoding the hex data of disk IDs and converting them to decimal.

The following changes were made to the System/38 3370 service tools in Periodic 12:

- A. Interim log analyze (ILA) is an additional function added to the System/38 maintenance facility, SM1, to be used for analyzing all 3370 machine check errors except 0817. The 0817 machine checks are analyzed via MSSD or SRC. There are three options available in ILA for diagnosing the 3370 machine check errors. They are:

1. Run the good machine path (GMP) on the failing 3370.
2. Analyze the machine check error data and receive a list of the FRUs.
3. Display the machine check error data.

Here is a brief description of how ILA works:

1. All 3370 machine checks, except 0817, are logged on the 62PC-1 in the interim log area.
2. The interim log stores only the last three 3370 machine check errors.
3. The displayed output of ILA shows the three errors in newest to oldest sequence. The following are displayed for each error:
  - a. Failing OU
  - b. Machine check
  - c. 3370 error code
  - d. Date and time of error
4. Status of the error data:
  - a. L — Logged in the system error log after a successful IMPL.
  - b. V — Error data is not logged in the system error log because no successful IMPL took place after the machine check.
  - c. N — Error data is not valid.
5. Any one of the three displayed errors can be analyzed by selecting options to:
  - a. Run the GMP on the failing OU.
  - b. Analyze the machine check error data and receive a list of FRUs.
  - c. Display the machine check error data.

The following are examples of typical display screens when using SM1 for the selection of ILA. The circles indicate the option selected.

#### Select Start a Service Function

PRIMARY MENU		SM1
SELECT ONE OF THE FOLLOWING		
1	CANCEL SM1	
2	START A SERVICE FUNCTION	
3	DISPLAY ACTIVE SERVICE FUNCTION	
4	DISPLAY ACTIVE CF KEY TABLE	
5	PRINT SELECTED DISPLAYS OF CF24	
6	PRINT ALL DISPLAYS	
7	CANCEL PRINT DISPLAYS OPTION	
8	EJECT DISKETTE	
OPTION	2	

#### Select MDI/MSSD/Interim Log Analyze

START A SERVICE FUNCTION MENU		SM1
SELECT ONE OF THE FOLLOWING		
1	MDI/MSSD/INTERIM LOG ANALYZE	
2	DIAGNOSTIC UTILITY DRIVER	
3	MCR UPDATE	
4	LINK LOAD	
5	DISPLAY ALTER DUMP	
6	VS STAND-ALONE DUMP	
7	PRINT STAND-ALONE DUMP	
8	AUX STORAGE INIT	
9	PACK UTILITY MAINTENANCE	
10	VMD LOG	
11	MCR INSTALL	
12	PROGRAM LOAD PROMPT	
13	EJECT DISKETTE	
OPTION	1	

#### Select 3370 Interim Log Analyze

PRIMARY MENU		MDI
SELECT ONE OF THE FOLLOWING		
1	CANCEL MDI MSSD ANALYZE/3370 INTERIM LOG ANALYZE	
2	MDI	
3	MSSD ANALYZE	
4	3370 INTERIM LOG ANALYZE	
NOTE MSSD ANALYZE AND 3370 INTERIM LOG ANALYZE OPTIONS 3 AND 4 WILL START THE MDI MODE FOR THE DEVICE DETERMINED FROM THE FAILURE INFORMATION.		
OPTION	4	
TRACF TABLE IS CLEAR		

Figure 11.

The following examples of display screens show the interim log display and how to select the option of running the GMP via ILA. The circles indicate the option selected.

**1**

Rochester  
90-08-14

## 9335 Model B01 850MB DASD Logic Part Numbers

### 9335 Service Aids

### Machines Affected

9335

### Logic Card and FRU Lists Contained in RETAIN TIPS

### A01 and B01 Logic Card PINs - RETAIN TIP H035678

Record number H035678  
Device D/T9335  
Model M  
Hit count UHC02971  
Success count USC0002  
Publication Code PC50  
TIP key 036  
Date created 089/08/10  
Date last altered A89/11/28  
Owning B.U. U.S.A.

Abstract: 9335 A01 and B01 logic part numbers.

### Text

### 9335 Model A01 DASD Controller Logic Part Numbers

Logic Part Description	Location	Usable P/N	Usable P/N	Current P/N
A Box Board	01A-A1		6243726	6243730
Interface Cd.	01A-A1B1	59X6838	59X6847	75X4472
R/W Card	01A-A1A1	59X6881 59X6882	59X6842 ----- > >	59X6893
CCP Card	01A-C1A1			8223625
Microproc. SA1 Card for 536X Only	01A-A1C5	59X6903 59X6904 59X6909 75X4481 75X9053	59X6901 59X6867 75X4458 75X4481 75X9083	75X9319
Microproc. SA1 Card for 937X Systems	01A-A1C5	75X4481 75X9083	75X9053 ----- > >	75X9319
Microproc. SA1 Card for 9408 Systems	01A-A1C5			75X9319

Logic Part Description	Location	Usable P/N	Usable P/N	Current P/N
B Box Board	01A-A1			8223640
Interface Cd.	01A-A1C1			8223646
Rd. Detect Cd.	01A-F1A1	See Note 6243739	8223658 ----- > >	6243740
Demod. Card	01A-A1A5	See Note 6243737	6243729 ----- > >	75X4418
Act. Dr. Cd.	01A-G1A1	See Note		59X6835
Servo Card	01A-A1B5	See Note 59X6905	59X6902 75X4413	75X4473
Motor Dr. Cd.	01A-C1A1			8232196
Power Ctrl. Cd.	01A-A1C5	59X6853 59X6907 75X9049 75X9311	59X6895 59X6915 75X4482 ----- > >	75X9312
CCP Card	01A-B1A1		8223710	59X6908

Note: The locations for the read/detect, demodulator, servo, and actuator driver cards have been shown for those cards dedicated to actuator 0. The positions for actuator 1 are as follows:

Read/detect card 01A-F1A2  
Demod. card 01A-A1A1  
Act. driver card 01A-G1A2  
Servo card 01A-A1B1

The following part numbers are for machines that have a serial number (S/N) 57-B0000 or higher, and that are different from the previous part number list. These machines do not have any cards installed in the A row of the 01A-A1 board. Also, this machine has only one double actuator driver (DADR) card.

Logic Part Description	Location	Usable P/N	Usable P/N	Current P/N
Sermod. Board	01A-A1			75X4469
Sermod. Card (Card for Actuator 1 is at 01A-A1B1)	01A-A1B5	75X9320 94X9901 94X9999	75X9925 75X9397 07F9774	37F9155
DADR Card	01A-G1A1	75X9096 75X9396	75X9394 07F9807	07F9812

**SAS Keywords**

- 9335PART
- 9335MISC
- 933500
- 9335DOC.

**Model A01 FRU Listing - RETAIN TIP H007515**

Record number H007515  
 Device D/T9335  
 Model M  
 Hit count UHC02830  
 Success count USC0000  
 Publication Code PC50  
 TIP key 006  
 Date created C86/12/07  
 Date last altered A89/12/06  
 Owning B.U. U.S.A.

Abstract: 9335 Model A01 FRU listing.

**Text**
**9335 Model A01 DASD Controller FRU List**  
**Power FRUs**

FRU Description	Location	Usable P/N	Current
Power Supply	01A-B1A1	6200890	62X9793
Thermal Trip Switch			59X6803
Cooling Fan 220 V			6200886
Power Switch			6200575

**Miscellaneous FRUs**

FRU Description	Location	Usable P/N	Current P/N
Service Panel/Keypad			6200884
Address Switch			6200826
Interposer	01A-A1A1-W		6243604
Interposer	01A-A1A1-X		6243604
Slider LH			6200885
Slider RH			6200886
DICI Cable 3.5M	A to B	6200950	6200812
DICI Cable 6.0M	A to B	6200951	6200813
Power Cable	A to 9309		376038

**SAS Keywords**

- 9335
- 9335PART
- 9335PARTINFO
- 9335FRU
- 9335MISC
- PART
- FRU.

**Model B01 FRU Listing - RETAIN TIP 007516**

Record number H007516  
 Device D/T9335  
 Model M  
 Hit count UHC02830  
 Success count USC0000  
 Publication Code PC50  
 TIP key 007  
 Date created C86/12/07  
 Date last altered A90/07/11  
 Owning B.U. U.S.A.

Abstract: 9335 Model B01 FRU listing.

**Text**
**9335 Model B01 FRU Listing**  
**Disk Enclosure**

FRU Description	Location	Usable P/N	Current P/N
Disk Enclosure			6232220

Please note that P/N 6200740 is the RAW DE P/N and must not be ordered.

Stator B/M	5146651
------------	---------

The stator B/M includes the following part numbers:

P/N	Description	Qty.
8222163	Stator	1
5148802	Shims	3
1621538	Screw	3
1622337	Washer	3

**Motor and Power FRUs**

FRU Description	Location	Usable P/N	Current P/N
Power Reg. Card	01A-E1A1		6232235
DC Power Supply	01A-D1A1	6232239	62X9790
AC Power Box			6200583
Transformer T1			6232246
Transformer T2			6232245
Fan Assembly	See Note	6232365	75X8831
Power Switch			6200581
I/O Switch			6200575
Circuit Breaker		CB3 4A	6232314
Circuit Breaker		CB5 1A	6232311
Circuit Breaker		CB6 5A	6232315
Thermal Switch			59X6769
Thermal Switch			6200580

Note: Model B01s with an S/N less than 57-02739 will have fan P/N 8232365 fitted. Boxes after this S/N have P/N 75X8831 fitted.

P/N 8232365 cannot be fitted to boxes after S/N 57-02739. P/N 75X8831 can be fitted to boxes with S/N less than 57-02739 by ordering corequisite B/M75X5955. This con-

tains an EPO link to cater for the change in power cabling and field installation instructions. The EPO link is P/N 8232291. This B/M became available in March, 1987.

## Miscellaneous FRUs

FRU Description	Location	Usable P/N	Current P/N
Interposer	01A-A1B1-W		6243604
Interposer	01A-A1B3-Y		6243604
Interposer	01A-A1B5-W		6243604
Interposer	01A-A1B7-Y		6243604
X-Card Connector	01A-A1A2-X		8232386
X-Card Connector	01A-A1A6-X		8232386
Slider LH	See Note		6200563
Slider RH	See Note		6200564

**Note:** If you have experienced a slider failure that has caused the Model B01 to jam in the rack, you will need to order the slider replacement, B/M75X5949, which provides special tools that enable the removal of sliders while in the rack. This B/M may require the use of the holst, P/N 69X5542. This B/M became available in March, 1987.

## SAS Keywords

- 9335PARTINFO
- 9335PART
- 9335MISC
- 9335
- 9335FRU
- FRU
- PART
- PARTINFO.

## Part Numbers Listed in RETAIN

### Switch Cover Part Numbers

These switch protectors are now available from Mechanicsburg:

P/N	Description
8553690	A-Box
8553691	B-Box

### Antistatic Arm Part Numbers

There is a new antistatic arm available for field replacement. This is now being fitted to all new B01s from Havant.

New P/N	Previous P/N
6200827	6200751

## Airflow Sensor Jumper

Now that the airflow sensor is no longer being fitted, a jumper plug (P/N 59X8788) is available to terminate the sensor plug P7 and allow removal of the airflow sensor on B01 boxes in the field.

## AS/400\* PTFs Required to Fix DASD Problems

Programming temporary fixes (PTFs) are essential for fixing many 9335 problems, for ensuring that adequate and correct information is presented for problem analysis, and to minimize the effects DASD-related problems have on system availability.

The PTFs required depend on the AS/400 code release level. Although the high-impact pervasive (HIPER) PTFs can be found in the Preventive Service Planning (PSP) information on RETAIN, the recommended action is to ensure your customers have applied the latest cumulative tape (CUM) package.

\*Trademark of IBM Corporation

## 9335 ECA (FB/M) List

This is a listing of the 9335 ECAs that have been released to date.

### EC0001 - Replaces SA1 Card for 9370 Attachment

Record number	H033883
Device	D/T9335
ECA number	ECA001
EC number	EC396673
Mandatory	N
Automatic shipment	N
Availability date	87/07
Plant of control	57
TIP key	
Service Code	33
Parts source	HVT
Publish flag	R
Hit count	UHC01611
Success count	USC0001
Publication Code	PC50
Date created	087/07/06
Date last altered	A89/03/21
Owning B.U.	U.S.A.

Abstract: ECA001 for 9335/A01.

### Purpose

This EC replaces the SA1 card to provide attachment capability to 937X systems. 9335s shipped with 937X systems will already have this change installed.

## Features

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
A01	B/M6200676	S/N Less than 57-68425	B/M6232216

B/M Installed	Service Hours	System Hours
B/M6232216	1.0	1.0

## Physical Check

If the SA1 card is P/N 75X4481, P/N 75X9053, or later, this EC has been installed.

## Prerequisites

System attachment to 937X or 5381/5382 with CPF release 8.0, Periodic 16, and hardware associated EC841942 (ECA243). EC841849D (Interim D) or latest interim EC must also be applied.

## Companion

None

## Concurrent

None

## Detail

This change ensures a consistent interface to the 9335/A01s from both the S/38\* and the 937X products. 9335/A01s with S/N less than 57-68425 must have this change installed to ensure correct operation on the 937X systems.

Under certain conditions, this change can provide some performance improvement when used on S/38. However, less than 5% of installations are expected to be able to see a benefit from this change.

Before ordering this change for use on the S/38, ensure that your SE has tuned the S/38 using the S/38 performance measurement tools.

This EC does not guarantee improved performance.

\* Trademark of IBM Corporation

## SAS Keywords

- 9335
- 5381
- 5382
- ECA.

## ECA002 - Fan Cable Safety

## SAFETY

Record number	H033835
Device	D/T9335
ECA number	ECA002
EC number	EC398680
Mandatory	Y
Automatic shipment	Y
Availability date	88/06
Plant of control	57
TIP key	
Service Code	33
Parts source	HVT
Publish flag	R
Hlt count	UHC00870
Success count	USC0000
Publication Code	PC20
Date created	O88/03/22
Date last altered	A89/03/20
Owning B.U.	U.S.A.

Abstract: ECA002 for 9335/B01 - fan cable safety.

## Purpose

This EC, ECA002, explains a possible service safety hazard in the 9335 B01, and how to inspect and remedy the hazard if found.

## Features

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
B01	B/M None	S/N Less than 57-B0000	B/M6243573

B/M Installed	Service Hours	System Hours
B/M6243573	0.5	0.5

## Physical Check

This EC has been installed if a label bearing EC No. 398680 is attached to the machine front plate beneath the removable front cover.

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

A possible safety hazard during machine servicing has been found in the 9335 B01 in the cable harness behind J22 connector (fan assembly connector).

This hazard is caused by the cable rubbing on the read detect card during shipment of the machine.

No hazard exists if normal safety procedures of removing the power from the box before servicing are observed. The hazard is only apparent if the Delayed Power Off switch is used to power down the machine and CB1 is not set to Off.

In this case, if the cable has been damaged, a 230-volt potential will exist on the exposed wires. The hazard is limited to 5 milliamperes by a series impedance in the line.

This EC details how to inspect for damage, how to repair any damage found, and how to reroute the cable to avoid possible future damage.

## SAS Keywords

- 9335
- SAFETY
- 9335POWER
- 9335PWR
- 9335EC
- 9335MISC
- ECA.

## ECAD001 - PLD Protection Diode for 9335 B01

Record number	H051127
Device	D/T9335
ECA number	ECA004
EC number	EC397010
Mandatory	Y
Automatic shipment	Y
Availability date	88/06
Plant of control	57
TIP key	
Service Code	33
Parts source	HVT
Publish flag	R
Hit count	UHC01809
Success count	USC0000

Publication Code	PC20
Date created	090/05/01
Date last altered	A90/05/01
Origin B.U.	U.S.A.

Abstract: ECA004 for 9335 Model B01 - PLD.

## Purpose

This EC improves power line disturbance (PLD) performance at low utility voltages by adding a diode to the 9335 B01 logic board assembly.

## Features

Type, Model, Stage	With B/M	Machines Affected and/or Feature/Device Description	B/M to be Installed
9335	B/M None	S/N Less than 57-40200	B/M6200960

B/M Installed	Service Hours	System Hours
B/M6200960	1.0	1.0

## Physical Check

This EC has been installed if a label bearing EC No. 397010 is attached to the machine front plate beneath the removable front cover.

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

To add the diode to the (01A-A1) board requires that the B01 be powered down. The logic gate is accessed by removing the front and top covers. The power control card must be removed and the part number checked to see if it is less than 75X9311. If it is, reinstall the card and install the diode assembly using the template provided. Labels are applied and the covers replaced.

Pages are provided to update the level 1 9335 Service Guide, SY33-0113.

Note: It is recommended that documents at suffix level 2 are ordered to replace the level 1 documents.

**SAS Keywords**

- 9335
- 9335POWER
- 9335PWR
- 9335PLD
- 9335EC
- 9335MISC
- 9335 REF 1
- ECA.

**B/M****Installed****Service****Hours****System****Hours**

B/M8232380 1.0 1.0

**Physical Check**

This EC has been installed if the label behind the front decorative cover of the 9335/A01 contains the words "EC397013A Installed," or if the 01A-A1C5 system adapter card in the 9335/A01 controller is P/N 75X9319 or later.

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This EC replaces the 01A-A1C5 system adapter card and applies a label indicating the EC level of the 9335/A01 controller.

**EC397013A - Prerequisite for Migration to D/T9406**

Record number H033882  
 Device D/T9335  
 ECA number ECA005  
 EC number EC397013A  
 Mandatory N  
 Automatic shipment N  
 Availability date 88/08  
 Plant of control 57  
 TIP key  
 Service Code 33  
 Parts source HVT  
 Publish flag R  
 Hit count UHC04300  
 Success count USC0000  
 Publication Code PC10  
 Date created 088/08/23  
 Date last altered A89/03/21  
 Owning B.U. U.S.A.

Abstract: ECA005 - 9335/A01 prerequisite for migration to D/T9406.

**Purpose**

This FB/M is required before the 9335/A01 controller can be migrated to the 9406 system.

FB/M 8232360, EC397013A, ECA005, contains the following P/Ns:

P/N	Description
8200475	Front cover label (1)
8200939	Card guide (1)
75x9319	System adapter card (1)
8232384	Installation instructions (1)

**Features**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
9335		9335/A01 Attached 9406	B/M8232360

**SAS Keywords**

- 9335
- 9335/A01
- 9406
- AS/400
- AS400
- ECA.

**EC A006 - Capacitors on Motor Driver**

Record number H08614  
 Device D/T9335  
 ECA number ECA006  
 EC number EC397033  
 Mandatory Y  
 Automatic shipment N  
 Availability date 90/07  
 Plant of control 57  
 TIP key  
 Service Code 33  
 Parts source HVT  
 Publish flag R  
 Hit count UHC00011  
 Success count USC0000  
 Publication Code PC50  
 Date created 090/06/29  
 Date last altered A90/07/09  
 Owning B.U. U.S.A.



**Abstract:** ECA006 for motor driver FRU replacement.

## Purpose

Inspect the motor driver FRU, P/N 8232196, for a potentially defective high voltage electrolytic capacitor.

## Features

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
B01	B/M None	57-58037 to 57-B3A5C	B/M None

B/M Installed	Service Hours	System Hours
B/M None	0.5	1.0

## Physical Check

The motor driver FRU should be replaced if the high voltage capacitor is gray, manufactured by Mepco, and has a date code of 8705 through 8730. Standing in front and facing the 9335, the capacitor is located on the left-hand side and to the rear of the motor driver FRU; it is approximately 6 inches long. Reference the 9335 Service Guide for location of the motor driver FRU (01A-C1A1).

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

This ECA only applies to 9335 B01 disk drives that have a motor driver FRU with a gray capacitor installed and manufactured by Mepco, with a date code of 8705 through 8730. The FRU should be ordered as a normal parts replacement item and written off against this ECA with Service Code 33.

**Note:** Do not try to replace just the capacitor; replace the motor driver FRU (P/N 8232196).

## SAS Keywords

- 9335EC
- 9335MISC.

**ECA007 - Resolve Motor Check at Power Up and/or URC 31A0**

Record number	H034857
Device	D/T9335
ECA number	ECA007
EC number	EC397037A
Mandatory	N
Automatic shipment	N
Availability date	89/04
Plant of control	57
TIP key	
Service Code	33
Parts source	HVT
Publish flag	R
Hit count	UHC01182
Success count	USC0001
Publication Code	PC50
Date created	089/03/09
Date last altered	A89/05/01
Owning B.U.	U.S.A.

**Abstract:** ECA007 - Motor check at power up and/or unit reference code (URC) 31A0.

## Purpose

- Update 9335 B01 functional code to improve system recovery from errors indicated by 9335 URC 31A0.
- Update 9335 B01 functional code to prevent electrical noise causing intermittent motor check errors at power up.

FB/M 55X1042, EC397037, ECA007, contains the following P/Ns:

P/N	Description
55X1042	Instructions
75X8805	EPROM extraction tool
55X1033	Front plate label
8553217	EPROM (quantity 2)

## Features

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
9335		S/N Range 57-B0000 to 57-B5C34 and URC 31A0 or S/N Range 57-B0000 to 57-B9000 and Motor Check at Power On	B/M55X1042



B/M Installed	Service Hours	System Hours
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B/M55X1042	1.5	1.5
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### Physical Check

This EC has been installed if a label bearing EC No. 397037 is attached to the machine front plate beneath the removable front cover.

Machines with sermod. cards, P/N 37F9155, installed in 01A-A1B1 and 01A-A1B5 positions do not require this EC.

### Prerequisites

None

### Companion

None

### Concurrent

None

### Detail

This EC replaces the two EPROM modules on sermod. cards, in 01A-A1B1 and 01A-A1B5 positions, and applies an identifying label to the front cover.

### SAS Keywords

- 9335URC
- 9335MISC
- 933500
- 9335EC
- URC31A0.

### ECAD08 - Fix for Particular 31XX Errors

Record number	H00982
Device	D/T9335
ECA number	ECA008
EC number	EC397045
Mandatory	Y
Automatic shipment	N
Availability date	90/01
Plant of control	57
TIP key	
Service Code	33
Parts source	HVT
Publish flag	R
Hit count	UHC02844
Success count	USC0001
Publication Code	PC50
Date created	080/01/26
Date last altered	A90/07/12
Owning B.U.	U.S.A.

Abstract: ECA008 for particular 31XX errors.

### Purpose

ECA008 (EC397045) is designed to identify and/or replace potentially faulty disk enclosures, P/N 8232220, located in the 9335 B01 direct access disk drives.

### Features

Type, Model, Stage	With B/M	Machines Affected and/or Fast/Device Description	B/M to be Installed
B01	B/M None	57-B0000 to 57-BE000	

B/M Installed	Service Hours	System Hours
---------------	---------------	--------------

	1.4	1.2
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### Physical Check

Check the system error log to see if a combination of three or more different URCs from URC 3115, 311D, 311F, 3133, and 3141 are being logged against an individual 9335. When you have completed interrogating the error log, and if you do have a combination of three or more different URCs, do the following:

1. From the 9335 A01 box, run test 18 with the run option of 01 on each of the actuators. Refer to the 9335 Service Guide, Chapter 3, for reference on running the test. This test should not be run for a period longer than 5 minutes.
  - If no failure is detected, follow the normal 9335 URC procedures for the URCs in the system error log.
  - If a single actuator failure is detected, go to step 2.
  - If both actuators fail, go to step 3.
2. If the test failed with URC 16XX (XX = any number), then do the cable swap procedure as directed in the 9335 Service Guide, Chapter 7. Loop test 18 again to the failing address to determine if it's a logic or DE problem. If the test still fails with a 16XX error after doing the cable swap procedure and rerunning test 18 with the loop option, the problem is not the DE.
3. If the test failed with URC 18XX (XX = any number) on each of the actuators, replace the DE.

### Prerequisites

None

### Companion

None

**Concurrent**

None

**Detail**

This FB/M is available for verification of DE P/N 8232220 and/or replacement of the DE. The DE should be ordered as a normal replacement part and written off using Service Code 33.

IBM customer engineers in the United States requiring assistance should call the Rochester Field Support Center.

This ECA will be available for a limited time, targeted to be obsoleted by December 31, 1990.

**Note:** Only B01 boxes that have three or more URCs from the given list will require testing and/or replacement.

**SAS Keywords**

- 9335URC
- 9335DE
- 9335DR
- 9335DIAG
- 933500
- 9335EC.

**Check List for 9335 B01 Quality Audit**

These are the recommended inspection actions that should be performed on a 9335 B01 to ensure it is free from any preventable failures.

These actions are also recommended for 9335 B01 boxes that have been installed on System/38\* for more than a year prior to being moved to AS/400.

On AS/400 and System/38, the recommended PTFs for DASD-related problems should be applied as part of this audit.

1. Pack scan data on all actuators. If any sectors are reported, then reassign them. All addresses that require reassigned sectors must also be rescanned.

**Note:** On System/38, set error correction code (ECC) correctables to Y.

2. Check that antistatic arm is OK.

It is usually advisable to fit a new part rather than replace the original part due to the difficulty of locating the dimple in the pad caused by the brush seating wear (use P/N 6200827).

- a. Contact is centered.
- b. Inspect for tension problems.
- c. Grease free.
- d. Dome is polished.

If there is any roughness on the dome, then this can be polished with Scotchbrite or a fine abrasive cloth. Do not change head disc assembly (HDA) for this reason.

3. If this is a premigration check, then vital product data (VPD) should be displayed and corrected if necessary. Serial numbers must be correct or problems will result when attempting to configure the DASD into the AS/400 system.

4. Check Mepco capacitors (refer to ECA006) on motor driver. Mepco capacitors have a grey case.

- a. Defective date range 8705 to 8730 (exclude dimpled case).

5. Power control and regulator cards:

- a. If the P/N of the power control card (01A-A1C5) is less than 75X9311, then check for power line distribution (PLD) FB/M (refer to ECA004). Early cards will not have a blue or black diode on the card above the module located in the middle of the card and adjacent to the card pins.

If the FB/M is fitted, then this is a diode on the mother board located red to P03, black to M11.

- b. Measure ac supply voltage in the 9309 rack and verify that the selector is set to the nearest value.

- c. Measure 66 V at P21-3 on power regulator. If not in range 63 to 70 V, adjust voltage selector if possible.

**Note:** If the ac setting is at maximum, the 66 V line does not exceed 73 V, and there are no 31XX URCs being reported, then no action need be taken. However, this is an indication that the supply ac is approaching the maximum allowed by the 9335 specification, and the customer should be made aware of this.

- d. With both actuators Ready, observe the lights and gently hit the power regulator cover with a screw driver handle. If Ready drops, then there is a relay with poor contacts, and the power regulator should be replaced.

6. Check following ground points are tight.

The location of these are shown in the drawing on the 9335 HDA Incident Guide reference card.

- a. Rear of power tray (1 wire)
- b. Rear of power tray (3 wire)
- c. Stud on rear below transformers
- d. Disk enclosure ground strap
- e. Two screws securing switch mode power supply (SMPS) ground distribution points
- f. Ground connection on card gate (1 wire).

7. Check that 3 X ESD clips are fitted to the trough at the top of the front panel. Fit if necessary (P/N 8553265).

8. Airflow sensor.

**Note:** The airflow sensor can be permanently removed and the two pins on plug P7 from the card gate jumpered together by ordering P/N 59X8788. This P/N is a special jumper that is a direct replacement for the airflow sensor.

- a. Check for correct location.
- b. Examine for dust.

9. Additional checks.

- a. Cable ties on front panel cable carrier in place and tight.
- b. Cable tightness around toroid/motor driver area. If the cable tie is forcing the cable against the screw head, then cut and remove the cable tie.
- c. Cables running along the side of the mother board are laid correctly and cannot be damaged by machine cover.
- d. Live and Neutral not crossed in 9309 rack.
- e. If power control card (PCC) 75X9312 is fitted, check if 9309 PCC is P/N 10F9298. If it is, then all power control cards should be at 75X9312 for auto-restart to work.
- f. Perform a visual check on machine.

<sup>a</sup> Trademark of IBM Corporation

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**Numerics**

72MD Service Strategy	19
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**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M2445876 B/M2445806	ECA203	EC841568	

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides a new 01A-B2 board for feature upgrades. This FB/M will be shipped automatically when required by an MES order only.

**ECA213**

EC841706  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

84-12-10  
SERVICE CODE 33  
84-11  
ROCHESTER  
ROCHESTER

**Purpose**

Provide a new RPQ diskette for Hebrew Right-to-Left WSC RFQ.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2772800	RPQ8D0148	B/M2445803

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2445093	2.3	2.0

**Prerequisites**

ECA206 EC837995

**Companion**

None

**Concurrent**

None

**ECA214**

EC841731  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

84-12-10  
SERVICE CODE 33  
84-12  
ROCHESTER

**Purpose**

Microcode update to support 5382.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All		BO Diskettes S/38 prior to S/N28480	B/M2445920

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2445920	0.0	0.0

**Prerequisites**

ECA206 EC837995

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides support for 5382 Model 20 and 40 (A or C). Three new Periodic 13 inventory diskettes at EC841731 are issued to replace the current inventory diskette at EC841687. Also, two additional special SLV1A diskettes are added to the branch office tool package.

**Notes**

This ECA replaced ECA211 EC837997

## ECA215

EC841739 85-04-24  
MANDATORY SERVICE CODE 33

AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced by ECA216 85-04-24

## ECA216

EC841783 85-04-24  
MANDATORY SERVICE CODE 33  
AVAILABLE 85-04

AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced by ECA223

### Purpose

Mandatory installation of Interim E.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All 967	B/M2548924	Service Library Branch Office Diskettes	B/M6370040 B/M6370039
-----	-----	5381/5382 prior to S/N28957 Factory Built 5382 prior to S/N40058	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M6370040	1.6	1.6
B/M6370039	0.0	0.0

### Prerequisites

ECA208, EC83 '995 Periodic 13

### Companion

None

### Concurrent

None

### Detail

Installation of Interim E (EC837995E) is mandatory to correct a microcode problem. Distribution of Installation instructions to each machine and diskettes (1 link/loadable, 2 Interim, and 3 Inventory) to each BO is by this EC. 3370 reformat utility is also included within Interim E.

## ECA217

EC841701 85-04-24/REV. 85-09-25  
MANDATORY SERVICE CODE 33

AVAILABLE 85-09  
AUTOSHIPPED FROM ROCHESTER  
Obsolete 86-06-16

### Purpose

Update 01A-A1 Board.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202190	01A-A1 Board (E-Type) and Adding 6369573 WSCE Adapter 5	B/M6203404
-----	-----	5381/5382 Prior to S/N29548. Factory Built 5382 Prior to S/N40211.	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M6203404	1.2	1.0

### Prerequisites

None

### Companion

None

### Concurrent

None

### Detail

This EC will be shipped only when required by an MES or RPQ.



**ECA218**

EC841702  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

85-04-24|REV. 85-08-28  
SERVICE CODE 33  
85-08  
ROCHESTER

**Purpose**

Update 01A-A2 board.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202196 B/M6369574	01A-A2 Board (E Type) and Adding WSC-E Adapter 6  5381/5382 Prior to S/N29011. Factory-Built 5352 Prior to S/N40064.	B/M6203405

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M6203405	1.2	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This EC will be shipped only when required by an MES or RPQ.

**ECA219**

EC841704  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Ob etc Replaced By ECA218

85-04-24|REV. 85-08-28  
SERVICE CODE 33  
85-08  
ROCHESTER

**Purpose**

Update 02A-A1 board.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2772635 B/M2772696	02A-A1 Board w/o ECA202, EC841546 and Adding Comm Attach SS3	B/M6203407
All	B/M2772635 B/M6369576	02A-A1 Board and Adding WSC-E Adapter 8  5381/5382 Prior to S/N29421. Factory-Built 5382 Prior to S/N40150.	B/M6203407

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M6203407	1.2	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This EC will be shipped only when required by an MES or RPQ.

**Notes**

This ECA replaces ECA202.

**ECA220**

EC841617  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced by ECA237

85-07-31|REV. 85-08-28  
SERVICE CODE 33  
85-08  
ROCHESTER

86-11-05

## Purpose

Update Periodic 14 MLM.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Basic MLM	B/M6370059
All	B/M2548933	3203/4245 Attachment	B/M6370060
All	B/M2773823	X.25 Attachment	B/M6370061
All	B/M2548754 and B/M4202195	WSC-E Attachment	B/M6370062
All	B/M2548815	50 Hz	B/M6370063
All	B/M2548746	60 Hz	B/M6370064
3,4,5A	B/M4202020	w/o B/M4224646	B/M6370065
6,7,8	B/M4202035		B/M6370066
9,A,C	B/M2772875		B/M6370067
5B	B/M4224646		B/M6370068
All	B/M4223259	3370 Attachment	B/M6370114
All	B/M4202179	WSC Attachment	B/M6370115
		5381/5382 Prior to S/N29376. Factory-Built 5382 Prior to S/N40111.	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M6370059	0.2	0.0
B/M6370060	0.2	0.0
B/M6370061	0.2	0.0
B/M6370062	0.2	0.0
B/M6370063	0.2	0.0
B/M6370064	0.2	0.0
B/M6370065	0.2	0.0
B/M6370066	0.2	0.0
B/M6370067	0.2	0.0
B/M6370068	0.2	0.0

## Prerequisites

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
All	ECA205	EC840995	

## Companion

To Install B/M	ECA Required	Machine Type	Comments
All	ECA223		EC837998

## Concurrent

None

## Detail

These FB/Ms provide supporting documentation for Periodic 14 microcode (CPF Release 7.0).

**ECA221**

EC841754  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolte Replaced by ECA233 86-09 10

85-07-31|REV. 85-08-28  
SERVICE CODE 33  
85-08  
ROCHESTER

## Purpose

Update 01A-B1 board.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
6QX	B/M2772640	Model 6 Adding 6144K MS	B/M6203450
		5381/5382 Prior to S/N29376. Factory-Built 5382 Prior to S/N40111.	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M6203450	1.4	0.7

## Prerequisites

None

## Companion

None

**Concurrent**

None

**Detail**

This EC will be shipped only when required by an MES or RPQ.

**ECA222**

EC841756  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
~~Obsolete~~ 86-08-16

85-07-31|REV. 85-08-28  
SERVICE CODE 33  
85-08  
ROCHESTER

**Purpose**

Update 02A-A2 board.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202198 B/M2772835	02A-A2 Board (E Type) w/o ECA197 EC841530 and Adding 02A-A1 Board	B/M6203408
All	B/M4202198 B/M6389575	02A-A2 Board (E Type) and Adding WSC-E Adapter 7	B/M6203408
		5381/5382 Prior to S/N29452. Factory-Built 5382 Prior to S/N40150.	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M6203408	1.2	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This EC will be shipped only when required by an MES or RPQ.

**Notes**

This ECA replaces ECA197.

**ECA223**

EC837998  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
~~Obsolete~~ Replaced by ECA229 86-08-22

85-07-31|REV.85-08-28  
SERVICE CODE 33  
85-08  
ROCHESTER

**Purpose**

Update Periodic 14 microcode, CPF Release 7.0.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3,4,5	B/M4202009 or B/M2772643	Base Microcode	B/M2445732
6	or B/M4202032	Base Microcode	
7/8	or B/M2772674	Base Microcode	
9/A/C		Base Microcode	
967		BO Diskettes	B/M2445734
		5381/5382 Prior to S/N28376. Factory-Built 5382 Prior to S/N40111.	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2445732	1.5	0.5
B/M2445734	0.0	0.0

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
All	ECA208	EC837995	
All	ECA216	EC841783	

## Companion

To Install B/M	ECA Required	Machine Type	Comments
All	ECA220		EC841617

## Concurrent

None

## Detail

This FB/M provides microcode to support:

- 5382 Model 18
- 5381 Model 6QX
- X.25 Attachment
- WSCE 5/8 Attachments
- 4245 Printer
- Limited MSSD to 82PC 1 (5382 only)
- Raised priority for concurrent diagnostics.

Date Released	Inventory Diskette EC Level	ECA
85-08	841789	223

## ECA224

EC841528  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

85-12-18|REV. 88-03-12  
SERVICE CODE 33  
88-01-15  
ROCHESTER

## Purpose

Update the remote feature relay driver board.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4224600 B/M4224601	2nd 3370 Feature 3430 Feature	B/M6370037
-----	-----	5381/5382 Prior to S/N 30026, Factory Built 5382 Prior to S/N40448	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M6370037	0.7	0.5

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

This FB/M will be shipped automatically when required with MES orders only.

## Notes

This ECA replaces ECA179.

## ECA225

EC841785  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

85-12-18|REV. 88-03-12  
SERVICE CODE 33  
88-01-15  
ROCHESTER

## Purpose

Update 02A-A1 board.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2772635 B/M2772698	02A-A1 Board w/o ECA202, EC841548 adding Comm Attach SS3	B/M6370145
All	B/M2772635 B/M6369576	02A-A1 Board w/o ECA219, EC841704 and Adding WSC-E Adapter 8	B/M6370145
-----	-----	5381/5382 Prior to S/N 30240, Factory Built 5382 Prior to S/N40595	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M8370145	1.2	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This EC will be shipped automatically when required with MES orders only.

**Notes**

This ECA replaces ECA219.

**ECA226**

EC841847 85-12-18

**Purpose**

This ECA is released for World Trade use only. No domestic Field Bill of Material will be shipped.

**ECA227**

EC841883 85-12-18  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 85-11-11  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete 86-11-05

**Purpose**

Replace the 72MD collet pivot pin on specified 5381 and 5382 machines.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548895	72MD	B/M0640719

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M0640719	1.0	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Replace the 72MD collet pivot pin on the below specified serial numbers due to a possible quality problem. This EC will automatically be shipped to these serial numbers.

24413	29700	29734-35	29818	40331-37
28231	29708	29737-40	29818	40343-46
28492	29708	29742-55	29884	40348-50
29053	29709	29757	40223	40357-59
29851	29715	29759-62	40275	40368-69
29852	29717-19	29764-72	40293	40386-88
29859	29722	29794-98	40298	
29885	29725	29798	40319-24	
29897	29726	29808-14	40326-27	
		29728-30		

**ECA228**

EC841848 86-05-21|REV. 86-11-05  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 86-08  
 AUTOSHIPPED FROM ROCHESTER  
 PLANT OF CONTROL ROCHESTER

**Purpose**

Provide S/38 trained service representatives with an updated set (Qty = 2) of periodic 14 Inventory diskettes to support 3422 tape drive and 3198 display.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548708	BO's SLV Diskettes	B/M6370395
All	B/M2548755	BO's SLV Diskettes	B/M6370395

All	B/M2548924	BO's SLV Diskettes	B/M6370395
All	B/M4202070	BO's SLV Diskettes	B/M6370395
All	B/M4202150	BO's SLV Diskettes	B/M6370395

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M6370395	00.1	00.0

## Prerequisites

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M6370795	ECA223	EC837998	

## Companion

None

## Concurrent

None

## Notes

53/44 "For all machines covered by IBM MA FB/M6370395 (BO's SLV Diskettes) will be shipped to branch offices."

## ECA229

EC841795  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
ROCHESTER  
86-08-27  
SERVICE CODE 33  
86-07  
ROCHESTER  
Obsolete Replaced by ECA234 86-11-05

## Purpose

Periodic 15 microcode update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3/4/ 6	B/M4202009	Base Microcode	B/M0840924
7/8	B/M2772843	Base Microcode	B/M0840924
9/A/ 9B7	B/M4202032	Base Microcode	B/M0840924
	B/M2772674	Base Microcode	B/M0840924
		B/O Diskettes	B/M0840918

90-08-10

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		5381/5382 Prior to S/N30551. Factory Built 5382 Prior to S/N40824.	
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## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M0840924	1.5	0.5
B/M0840918	0.1	0.0

## Prerequisites

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M0840924	ECA022	EC837998	

## Companion

To Install B/M	ECA Required	Machine Type	Comments
B/M0840924	ECA023	5381	EC841861

## Concurrent

None

## ECA230

EC841861  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
ROCHESTER  
86-09-10  
SERVICE CODE 33  
86-07  
ROCHESTER  
Obsolete 87-03-11

## Purpose

Update branch office support documentation.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
901	B/M0840918	B/O Documentation	B/M6370108

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M6370108	0.1	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides the branch office support documentation to support the new model series.

**ECA231**

EC841922  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 87-03-25

86-09-10  
SERVICE CODE 33  
86-08  
ROCHESTER

**Purpose**

Replace or rework 01A-B2 board on selected machines.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548846	01A-B2 Board at P/N 6370275	B/M6370255
All	B/M2548846	01A-B2 Board at P/N 60X5640 5381/5382 Prior to S/N 30531, Factory Built 5382 Prior to S/N40800	B/M6370256

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M6370255	1.0	1.0
B/M6370256	0.5	0.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

FB/M6370255 replaces the 01A-B2 board on the following serial numbers.

20723 21109 21210 21703 22557 22805 22968

FB/M6370256 reworks the 01A-B2 board on the following serial numbers.

20348 20807 21102 21263 21269 21444 22105 22808  
22829 22728 23186 23738 24144 24251 24292 24507  
24632 25027 25451 25881 25823 26473 26711 26865  
26878 27219 27828 28420 29214 29720 29883 29888  
30074 30149 30243 30258 30297 40005 40197 40233

**ECA232**

EC841787  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced by ECA234 86-11-05

86-09-10  
SERVICE CODE 33  
86-08  
ROCHESTER

**Purpose**

Microcode update to support 9332/9335.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All All	B/M0640924	B/O Diskettes New Model Systems 5381/5382 Prior to S/N 30616, Factory Built 5382 Prior to S/N40850	B/M0640933 B/M0640934

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M0640933	0.1	0.0
B/M0640934	1.5	1.5

### Prerequisites

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
	ECA229	EC841795	Periodic 15

### Companion

None

### Concurrent

None

### Detail

This ECA provides new inventory diskettes to the branch offices and ships an FB/M to all "New Model" machines shipped prior to line break in of this EC.

### ECA233

EC841929  
AS REQUIRED  
AVAILABLE  
ORDER FROM

88-09-10  
SERVICE CODE 33  
88-08  
ROCHESTER

0b, o, etc 89-05-23

### Purpose

Update 01A-B1 board.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
8XX	B/M2772640	Model 6 Adding MS to More than 4 Meg. 5381/5382 Prior to S/N 28376. Factory Built 5382 Prior to S/N40111	B/M0640927

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M0640927	1.4	0.7

### Prerequisites

None

### Companion

None

### Concurrent

None

### Notes

This ECA replaces ECA221.

### ECA234

EC841849  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

88-11-05  
SERVICE CODE 33  
88-12  
ROCHESTER  
ROCHESTER

### Purpose

Periodic 18 microcode update, CPF Release 8.0.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3,4,5 6 7,8 9,A,C 1 2 F B,D,E 967	B/M4202009 B/M2772643 B/M4202032 B/M2772674 B/M6369683 B/M59X3707 B/M59X3706 B/M2772674	Base Microcode Base Microcode Base Microcode Base Microcode Base Microcode Base Microcode Base Microcode Base Microcode BO Diskettes	B/M0640937    B/M0640937 B/M0640919  B/M0640938

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M0640937	01.5	01.5
B/M0640937	01.5	01.5
B/M0640919	00.1	00.0
B/M0640938	00.1	00.0

### Prerequisites

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M0640937	ECA229	EC841795	Periodic 15 Microcode



**Companion**

To Install B/M	ECA Required	Machine Type	Comments
B/M0640937	ECA237	5381	Per. 16 MLM update

**Concurrent**

None

**ECA235**

EC841923  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

86-11-05  
SERVICE CODE 33  
86-11  
ROCHESTER  
ROCHESTER

**Purpose**

Install EMI covers on selected machines to prevent emission of excess electrical noise.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548837	Frame 02	B/M0640926

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M0640926	02.2	02.2

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Install EMI covers on the following machines:

30472	30514	30538	30651	40758	40759	40769	40770
40771	40772	40775	40778	40778	40779	40780	40787
40790	40792	40793	40795	40798	40800	40801	40804
40806	40818	40827	40829	40831	40832	40834	40835
40838	40841	40845	40847	40849	40850	40855	40860
40861	40864	40867	40872	40879	40880	40884	40887
40888	40889	40894	40895	40897	40898	40900	40904
40906	40908	40910	40916				

**ECA236**

EC841937  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

86-11-05  
SERVICE CODE 33  
86-10  
ROCHESTER  
ROCHESTER

**Purpose**

Mandatory installation of Patch 22 on all new model machines at Periodic Level 15. This patch corrects a potential data loss problem.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
1	B/M59X3694	Base Microcode	B/M0640935
2	B/M59X3695	Base Microcode	
B	B/M59X3696	Base Microcode	
D	B/M59X3697	Base Microcode	
E	B/M59X3652	Base Microcode	
F	B/M59X3701	Base Microcode	

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M0640935	00.5	00.5

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M0640935	ECA229	EC841795	

## Companion

None

## Concurrent

None

## Detail

The mandatory installation of Patch 22 is to correct a microcode problem for new model machines at Periodic 15. This EC will distribute installation instructions to affected machines. The patch diskette is sent to the branch office via the PTF distribution network.

### ECA237

EC841862  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

86-11-05  
SERVICE CODE 33  
86-12  
ROCHESTER  
ROCHESTER

## Purpose

Periodic 16 MLM update.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Basic MLM	B/M0640922
All	B/M6369654	9332/9335 Devices	B/M0640921
All	B/M4202149	3430/3433 Attachment	B/M0640920
901		B/O Support Docs	B/M0640923

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M0640922	00.2	00.0
B/M0640921	00.2	00.0
B/M0640920	00.2	00.0
B/M0640923	00.2	00.0

## Prerequisites

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M0640922	ECA220	EC841617	
B/M0640920	ECA220	EC841617	

## Companion

To Install B/M	ECA Required	Machine Type	Comments
B/M0640922	ECA234	5381	Periodic 16 microcode

## Concurrent

None

## Detail

These FB/Ms provide the supporting documentation for Periodic 16 microcode, CPF Release 8.0.

### ECA238

EC841911  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

### SAFETY

86-11-05  
SERVICE CODE 33  
86-11  
ROCHESTER  
ROCHESTER

## Purpose

Install safety guards on lower end of cover ground plates.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548800	Base 01 Frame	B/M0640932
All	B/M2548837	Frame 02	B/M0640925

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M0640932	00.3	00.3
B/M0640925	00.3	00.3

## Prerequisites

None

## Companion

None

## Concurrent

None

**Detail**

Install safety guard on lower end of cover ground plates to prevent injury when removing lower hinge pin from the machine cover.

**ECA239**

EC A18298

86-12-03

**Purpose**

This ECA is released for World Trade use only.

**ECA240**
 EC841947  
 MANDATORY

 AVAILABLE  
 AUTOSHIPPED FROM  
 PLANT OF CONTROL

 87-01-28  
 SERVICE CODE 33  
 86-12  
 ROCHESTER  
 ROCHESTER
**Purpose**

Correct a VMC problem which could cause damage to customer data.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548924	Service Library	B/M0641008

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M0641008	00.8	00.8

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M0641008	ECA234	EC841849	Periodic 16 and Interim EC-B

**Companion**

None

**Concurrent**

None

**Detail**

This patch must be installed on the SLV after periodic level 16 and interim EC-B are installed, but before link/loading the updated SLV to the system. If any alterations such as model/planar change, or rebuild are performed on the SLV, this patch must be reapplied.

**Notes**

The patch diskette is available on the Series/1 PTF Distribution Network.

**ECA241**
 EC841952  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 PLANT OF CONTROL

 87-07-01  
 SERVICE CODE 33  
 87-08  
 ROCHESTER  
 ROCHESTER
**Purpose**

Replace RC assembly No. 11 on specified 5381 and 5382 machines.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202196	02A-A2 BD	B/M0641011

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M0641011	01.0	01.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

## Detail

Replace RC assembly No. 11 on the serial numbers specified below due to a possible quality problem.

This EC will automatically be shipped to these serial numbers: 22518, 22628, 22728, 23126, 23509, 24292, 24395, 26146, 26413, 26827, 28377, 29001, 31895, 40129, 40576, 40760, 40892, 41170, 41240, 41408, 41419, 41420, 41421, 41423, 41425, 41428, 41430, 41431, 41434, 41436, 41438, 41441, 41445.

## ECA242

EC841955  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

87-07-15  
SERVICE CODE 33  
87-07  
ROCHESTER  
ROCHESTER

## Purpose

Provide a new RPQ diskette for National Language Support RPQ.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2772799	RPQ 8D0149	B/M0640651
All	B/M2772804	RPQ 8D0191	B/M0640651
All	B/M2772800	RPQ 8D0148	B/M0640588
All	B/M2775895	RPQ 8D0267	B/M0640654
All	B/M2775897	RPQ 8D0269	B/M0640660
All	B/M2775898	RPQ 8D0287	B/M0640673
All	B/M2775899	RPQ 8D0268	B/M0640674
All	B/M2775911	RPQ 8D0270	B/M0640717
All	B/M2775912	RPQ 8D0261	B/M0640718

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M0640651	02.3	02.0
B/M0640651	02.3	02.0
B/M0640588	02.3	02.0
B/M0640654	02.3	02.0
B/M0640660	02.3	02.0
B/M0640673	02.3	02.0
B/M0640674	02.3	02.0
B/M0640717	02.3	02.0
B/M0640718	02.3	02.0

## Prerequisites

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M0640651	ECA234	EC841849	Periodic Level 16
B/M0640588	ECA234	EC841849	Periodic Level 16
B/M0640654	ECA234	EC841849	Periodic Level 16
B/M0640660	ECA234	EC841849	Periodic Level 16
B/M0640673	ECA234	EC841849	Periodic Level 16
B/M0640674	ECA234	EC841849	Periodic Level 16
B/M0640717	ECA234	EC841849	Periodic Level 16
B/M0640718	ECA234	EC841849	Periodic Level 16

## Companion

None

## Concurrent

None

## Detail

None

## ECA243

EC841942  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

87-07-15  
SERVICE CODE 33  
87-08  
ROCHESTER  
ROCHESTER

## Purpose

Release new Periodic 16 Inventory and IML diskettes.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
1XX	B/M59X3694	Base Microcode	B/M0641010
2XX	B/M59X3695	Base Microcode	B/M0641010
BXX	B/M59X3696	Base Microcode	B/M0641010
DXX	B/M59X3697	Base Microcode	B/M0641010
EXX	B/M59X3652	Base Microcode	B/M0641010
FXX	B/M59X3701	Base Microcode	B/M0641010
967		B0 Diskettes	B/M0641009

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M0841010	01.0	01.0
B/M0841010	01.0	01.0
B/M0841010	01.0	01.0
B/M0841010	01.0	01.0
B/M0841010	01.0	01.0
B/M0841010	01.0	01.0
B/M0841009	00.1	00.1

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M0841010	ECA229	EC841795	Periodic 15

**Companion**

Periodic 16 Interim D (EC841849D)

**Concurrent**

None

**Detail**

FB/M641010 provides instructions and a new IML diskette at EC841942 to all of the extended model series machines. FB/M641009 provides new Periodic 16 inventory diskettes at EC841942 and a new IML diskette to the branch offices. Also included in this bill of material are Interim D diskettes.

**ECA244**

EC841958	87-11-18
MANDATORY	SERVICE CODE 33
AVAILABLE	87-10
AUTOSHIPPED FROM	ROCHESTER
PLANT OF CONTROL	LEXINGTON

**Purpose**

Provide a new WSC RPQ diskette for Hebrew RPQ8D0148.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2772800	RPQ8D0148	B/M0840588

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M0840588	02.3	02.0

**Prerequisites**

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
B/M0840588	ECA213	EC841708	

**Companion**

None

**Concurrent**

None

**Detail**

None

**ECA245**

EC841954	87-11-18
MANDATORY	SERVICE CODE 33
AVAILABLE	87-10
AUTOSHIPPED FROM	ROCHESTER
PLANT OF CONTROL	ROCHESTER

**Purpose**

Provide microcode update (HAEC) for Periodic 16.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M59X3696	Base Microcode	B/M0841012
	B/M59X3697	Base Microcode	B/M0841012
	B/M59X3707	Base Microcode	B/M0841012
	B/M59X3706	Base Microcode	B/M0841012
	B/M6369652	Base Microcode	B/M0841012
	B/M6369663	Base Microcode	B/M0841012
All	B/M4224609	Base Microcode	B/M0841016
	B/M4224731	Base Microcode	B/M0841016
	B/M2548780	Base Microcode	B/M0841016
	B/M4224698	Base Microcode	B/M0841016
	B/M2772641	Base Microcode	B/M0841016
	B/M4224719	Base Microcode	B/M0841016
	B/M4202157	Base Microcode	B/M0841016
	B/M2772679	Base Microcode	B/M0841016
	B/M2772680	Base Microcode	B/M0841016
987		BO Diskettes	B/M0841013

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M0841016	01.0	00.5
B/M0841013	00.1	00.1

## Prerequisites

To Install B/M	ECA Required	EC Required	Physical Checks for Prerequisites
All	ECA234	EC841849	Periodic 16 Release 8

## Companion

None

## Concurrent

To Install B/M	ECA Required	Machine Type	Comments
All	ECA245	5381	Interim E

## Detail

FB/M841012 will be shipped to new model systems. It will include an IML diskette.

FB/M841016 will be shipped to old model systems. It will not include an IML diskette.

FB/M841013 will be shipped to all branch offices. It will include the Inventory diskettes, IML diskettes, and Interim E.

### ECA246

EC841957  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

88-09-13  
SERVICE CODE 33  
87-12  
ROCHESTER  
ROCHESTER

## Purpose

Provide new RPQ diskette for machines with RPQ843470 installed.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
9XX	B/M59X3709	RPQ843470	B/M0841014
AXX	B/M59X3709	RPQ843470	B/M0841014
BXX	B/M59X3709	RPQ843470	B/M0841014
CXX	B/M59X3709	RPQ843470	B/M0841014
DXX	B/M59X3709	RPQ843470	B/M0841014
EXX	B/M59X3709	RPQ843470	B/M0841014
FXX	B/M59X3709	RPQ843470	B/M0841015

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M0841014	01.0	01.0
B/M0841015	01.0	01.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

Update system with new level microcode for RPQ843470.

### ECA247

EC841982  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

88-09-13  
SERVICE CODE 33  
88-09  
ROCHESTER  
ROCHESTER

## Purpose

Periodic 17 microcode update, CPF Release 8.0.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
3,4,5	B/M4202009	Base Microcode	B/M69X5646
6	B/M2772643	Base Microcode	
7,8	B/M4202032	Base Microcode	
9,A,C	B/M2772674	Base Microcode	

1	B/M6369663	Base Microcode	
2	B/M59X3707	Base Microcode	
F	B/M59X3708	Base Microcode	
B,D,E	B/M2772674	Base Microcode	
967		BO Diskettes	B/M69X5645

### Estimated Installation Time

B/M	Service	System
Installed	Hours	Hours
B/M69X5645	00.1	00.0
B/M69X5646	01.5	01.5

### Prerequisites

To Install	ECA	EC	Physical Checks
B/M	Required	Required	for Prerequisites
B/M69X5646	ECA234	EC841849	Periodic 16 Microcode

### Companion

To Install	ECA	Machine	Comments
B/M	Required	Type	
		5381	N/A

### Concurrent

To Install	ECA	Machine	Comments
B/M	Required	Type	
		5381	N/A

### Notes

The IML code is now part of the system SLV and will no longer be shipped as a separate diskette.

### ECA248

EC841848	89-05-23
AS REQUIRED	SERVICE CODE 33
AVAILABLE	89-05
ORDER FROM	ROCHESTER
PLANT OF CONTROL	ROCHESTER

### Purpose

Update 01A-B1 board.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
6XX	B/M2772640	Model 6 Adding MS to More than 4 Meg. 5381/5382 Prior to S/N 29376. Factory Built 5382 Prior to S/N40111	B/M0640927

### Estimated Installation Time

B/M	Service	System
Installed	Hours	Hours
B/M0640927	01.4	00.7

### Prerequisites

None

### Companion

None

### Concurrent

None

### Notes

This ECA replaces ECA221 and ECA233.

### Purposa

Provide an improved 62PC adapter card. This EC is now factory only.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat./Device Description	B/M to be Installed
All	B/M2548839	1st 62PC adapter (1-4)	B/M2771279
-----	-----	S/38 prior to S/N24844	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771279	2.3	2.0

### Prerequisites

ECA163, EC837990

### Companion

To Install B/M	ECA Required	Machine Type	Comments
B/M2771279	ECA169		EC841393 If second 62PC adapter is installed

### Concurrent

ECA167, EC841171

### Detail

This FB/M provides an improved 62PC adapter card for the 1st adapter position. Included is the supporting microcode released by EC841171.

### Notes

Previous level adapter cards will not work with EC841171 microcode.

### ECA169

EC841393 82-11-03  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 82-11  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced By ECA174 82-12-01

### Purpose

Provide an improved 62PC adapter card (#2) (PC 5 & 6). This EC is now factory only.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat./Device Description	B/M to be Installed
All	B/M4224699	Adapter, 62PC 5 & 6	B/M2771326
-----	-----	S/38 prior to S/N24844	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771326	0.3	0.3

### Prerequisites

ECA163, EC837990

### Companion

ECA168, EC841390

### Concurrent

None

### Detail

This FB/M provides an improved 62PC adapter card for the 2nd adapter position (32PC 5 & 6).

### ECA170

EC841383 82-11-03  
 MANDATORY  
 AVAILABLE 82-11  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced By ECA174 82-12-01

### Purpose

Provide an improved 3370 adapter card. This EC is now factory only.



**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be installed
All -----	B/M2548727 -----	3370 Adapter #1 ----- S/38 prior to S/N24844	B/M2548234 -----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2548234	0.3	0.3

**Prerequisites**

ECA163, EC837990

**Companion**

ECA167, EC841171

**Concurrent**

ECA188, EC841390

**Detail**

This FB/M provides an improved 3370 adapter card. Microcode supporting this card is included with ECA168, EC841390.

**ECA171**

EC841282 82-11-03  
MANDATORY SERVICE CODE 33  
AVAILABLE 82-11  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced By ECA175 82-12-01

**Purpose**

Provide updated documentation (MLM).

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be installed
All -----	B/M2548953 -----	Base MLM ----- S/38 prior to S/N24844	B/M2771231 -----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771231	0.5	0.0

**Prerequisites**

ECA168, EC841390

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides the documentation supporting ECAs 167, 168, 169, 170.

**ECA172**

EC841414 82-12-01  
MANDATORY SERVICE CODE 33  
AVAILABLE 82-12  
AUTOSHIPPED FROM ROCHESTER  
Obsolete 86-06-16

**Purpose**

Provide an improved 82PC adapter card.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be installed
All -----	B/M2548839 -----	1st 82PC Adapter (1-4) ----- S/38 prior to S/N24844	B/M2771440 -----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771440	2.3	2.0

**Prerequisites**

ECA163, EC841390

**Companion**

To Install B/M	ECA Required	Machine Type	Comments
B/M2771440	ECA173  ECA174		EC841415 If second 62PC adapter is installed EC841616 If 1st 3370 adapter is installed

**Concurrent**

ECA175, EC841417

**Detail**

This FB/M provides an improved 62PC adapter card for the 1st adapter position. Included is the supporting microcode at EC841171. Previous level adapter cards will not work with microcode at EC841171.

**ECA173**

EC841415  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
**Obsolete 86-06-16**

82-12-01  
SERVICE CODE 33  
82-12  
ROCHESTER

**Purpose**

Provide an improved 62PC adapter card (#2, PC 5 & 6).

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4224699	Adapter, 62PC 5 & 6 S/38 prior to S/N24844	B/M2771441

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771441	0.3	0.3

**Prerequisites**

ECA163, EC837990

**Companion**

None

**Concurrent**

ECA172, EC841414

**Detail**

This FB/M provides an improved 62PC adapter card for the 2nd adapter position. Microcode supporting this card is included in ECA172, EC841414.

**ECA174**

EC841416  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
**Obsolete 86-06-16**

82-12-01  
SERVICE CODE 33  
82-12  
ROCHESTER

**Purpose**

Provide an improved 3370 adapter card.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548727	3370 Adapter #1 S/38 prior to S/N24844	B/M2771442

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771442	0.3	0.3

**Prerequisites**

ECA163, EC837990

**Companion**

None

**Concurrent**

ECA172, EC841414

**Detail**

This FB/M provides an improved 3370 adapter card. Microcode supporting this card is included with ECA172, EC841414.

**ECA175**

EC841417  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
~~Obsolete~~ 86-05-16

82-12-01/REV. 83-01-28  
SERVICE CODE 33  
82-12  
ROCHESTER

**Purpose**

Provide updated documentation (MLM).

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M2771443
-----	-----	S/38 prior to S/N24844	-----

**Estimated Installation Time**

<b>B/M Installed</b>	<b>Service Hours</b>	<b>System Hours</b>
B/M271443	0.5	0.0

**Prerequisites**

ECA160, EC840992

**Companion**

None

**Concurrent**

ECA172, EC841414

**Detail**

This FB/M provides the supporting documentation for ECAs 172, 173, and 174.

**ECA176**

EC841385  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

83-01-28  
SERVICE CODE 33  
83-04  
ROCHESTER  
ROCHESTER

**Purpose**

Releases an improved wrap connector.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4223430 B/M4224779	Auto Call SS1 Auto Call SS2	B/M2771189
-----	-----	S/38 prior to S/N25497	-----

**Estimated Installation Time**

<b>B/M Installed</b>	<b>Service Hours</b>	<b>System Hours</b>
B/M2771189	0.0	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides an improved wrap connector for machines with 'autocall' feature.

**ECA177**

EC841402  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
~~Obsolete~~ Replaced by ECA182 83-04-20

83-01-26  
SERVICE CODE 33  
82-12  
ROCHESTER

**Purpose**

Provides corrected Vol J1 page.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M4361408
-----	-----	S/38 prior to S/N25163	-----

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M4361408	0.1	0.0

**Prerequisites**

ECA017, EC841417

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides a corrected Vol J1 page to indicate 3370 adapter priorities.

**ECA178**

EC841422  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

**SAFETY**

83-01-26  
SERVICE CODE 33  
83-02  
ROCHESTER  
ROCHESTER

**Purpose**

Safety,

This FB/M corrects a grounding exposure.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548883	Base Power	B/M2771508
-----	-----	S/38 prior to S/N25327	-----

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M2771508	0.8	0.8

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides redundant grounding for components isolated from the machine frame.

**ECA179**

EC841041A  
MANDATORY

83-02-23  
SERVICE CODE 33

**AUTOSHIPPED FROM****ROCHESTER**

Obsolete Replaced by ECA224 85-11-19

**Purpose**

Upgrade the remote feature relay driver board.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4224600 B/M4224601 B/M2548733	2nd 3370 Feature 3430 Feature Power Exp. Prereq 1	B/M4381440
-----	-----	S/38 prior to S/N22351	-----

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M4361440	0.7	0.5

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

## Detail

This FB/M increases the number of ports on the remote feature relay board.

This FB/M will be shipped automatically when required with MES orders only.

## ECA180

EC841386B 83-02-23  
MANDATORY SERVICE CODE 33  
AVAILABLE 83-08  
AUTOSHIPPED FROM ROCHESTER

05,01 etc 85,05-06

## Purpose

Upgrade 01A-A1 Board.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202180 B/M4224600	01A-A1 Board 2nd 3370 Feature	B/M4381409
-----	-----	S/38 prior to S/N25771	-----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M4381409	1.2	1.0

## Prerequisites

ECA172, EC841414

## Companion

None

## Concurrent

None

## Detail

This FB/M provides a repackaged 01A-A1 Logic Board for feature upgrades.

This FB/M will be shipped automatically when required with MES only.

## ECA181

EC841452 83-04-20  
AS REQUIRED SERVICE CODE 33  
AVAILABLE 83-04  
ORDER FROM ROCHESTER

05,01 etc Replaced By ECAs 183, 184, 185, 186

## Purpose

Work Station Controller card providing fix for 5291/5292 power on reset problem.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548753 B/M2548783 B/M2551004 B/M2551011	WSC #1 WSC #2 WSC #3 WSC #4	B/M2771463 B/M2771463 B/M2771463 B/M2771463

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771463	1.5	1.0
B/M2771463	0.3	0.2
B/M2771463	0.3	0.2
B/M2771463	0.3	0.2

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

The 5381 Work Station Controller card is being replaced to fix a power-on reset problem in attached 5291/5292 work stations.

This FB/M is to be ordered only for systems experiencing this problem.

**ECA182**

EC840994 83-04-20  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 83-06  
 AUTOSHIPPED FROM ROCHESTER  
 Obsolete Replaced by ECA205 85-06-24

**Purpose**

Periodic 12 MLM Update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Base MLM	B/M2771393
All	B/M2548982	Communications	B/M2771395
3,5A	B/M4202020	w/o 4224648	B/M2771396
7	B/M4202035		B/M2771397
All	B/M2548705	3410/11	B/M2771398
All	B/M4223259	3370	B/M2771399
All	B/M2548815	50 Hz	B/M2771595
All	B/M2548748	60 Hz	B/M2771596
5B	B/M4224648	Mod 5B	B/M2771597
901		BO Doc	B/M2771394
-----	-----	S/38 prior to S/N25771	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771393	1.0	0.0
B/M2771395	0.2	0.0
B/M2771396	0.2	0.0
B/M2771397	0.2	0.0
B/M2771398	0.2	0.0
B/M2771399	0.2	0.0
B/M2771595	0.2	0.0
B/M2771596	0.2	0.0
B/M2771597	0.2	0.0
B/M2771394	0.2	0.0

**Prerequisites**

ECA160, EC840992

**Companion**

ECA187, EC837892

**Concurrent**

None

**Detail**

These FB/Ms provide supporting documentation for Microcode Periodic 12 (CPF Release 5.0).

**ECA183**

EC841441 83-08-15  
 MANDATORY SERVICE CODE 33  
 AVAILABLE 83-06  
 AUTOSHIPPED FROM ROCHESTER  
 PLANT OF CONTROL ROCHESTER

**Purpose**

This FB/M supplies a new workstation controller card - 1st or base position

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548753	WSC #1	B/M2771601
	w/o B/M4202130 or B/M920120	Light Pen	
		L to R Read (Arabic only)	
-----	-----	S/38 prior to S/N25781	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771601	1.5	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

New WSC card to correct the following problems:

- 5291/5292 error code 0124 in EREP
- Aid Key loop problem using unlock keyword
- Local print key problem

**ECA184**

EC841442  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

83-06-15  
SERVICE CODE 33  
83-06  
ROCHESTER  
ROCHESTER

**Purpose**

This FB/M supplies a new workstation controller card -  
2nd position.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548763 w/o B/M4202141 or B/M920121	WSC #2  Light Pen  L to R Read (Arabic only)	B/M2771602
-----	-----	S/38 prior to S/N25781	-----

**Estimated Installation Time**

<b>B/M Installed</b>	<b>Service Hours</b>	<b>System Hours</b>
B/M2771602	0.3	0.2

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

New WSC card to correct the following problems:

- 5291/5292 error code 0124 in EREP
- Aid Key loop problem using unlock keyword
- Local print key problem

**ECA185**

EC841443  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

83-06-15  
SERVICE CODE 33  
83-06  
ROCHESTER  
ROCHESTER

**Purpose**

This FB/M supplies a new workstation controller card -  
3rd position.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2551004 w/o B/M4202142 or B/M920122	WSC #3  Light Pen  L to R Read (Arabic only)	B/M2771603
-----	-----	S/38 prior to S/N25781	-----

**Estimated Installation Time**

<b>B/M Installed</b>	<b>Service Hours</b>	<b>System Hours</b>
B/M2771603	0.3	0.2

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

New WSC card to correct the following problems:

- 5291/5292 error code 0124 in EREP
- Aid Key loop problem using unlock keyword
- Local print key problem

**ECA186**

EC841444  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

83-08-15  
SERVICE CODE 33  
83-08  
ROCHESTER  
ROCHESTER

**Purpose**

This FB/M supplies a new workstation controller card - 4th position.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2551011 w/o B/M4202143 or B/M920123	WSC #4 Light Pen L to R Read (Arabic only)	B/M2771604
-----	-----	S/38 prior to S/N25781	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771604	0.3	0.2

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

New WSC card to correct the following problems:

- 5291/5292 error code 0124 in EREP
- Aid Key loop problem using unlock keyword
- Local print key problem

**ECA187**

EC837992  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

83-08-15  
SERVICE CODE 33  
83-08  
ROCHESTER

Obsolete Replaced by ECA206 85-04-24

**Purpose**

Periodic 12 microcode update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202009 or B/M4202032	Base Microcode	B/M2771400
987		BO Diskettes (Set of 5)	B/M2771401
989		A/FE & E/ME/A	B/M2771402
-----	-----	S/38 prior to S/N25777	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771400	2.0	1.8
B/M2771401	0.0	0.0
B/M2771402	0.0	0.0

**Prerequisites**

ECA180, EC837990  
ECA172, EC841171

**Companion**

None

**Concurrent**

ECA182, EC840994

**Detail**

This FB/M provides microcode to:

- Support models 3/4/5/7/8
- WSC-E—New workstations controller
- 5219 Mod DO1, DO2—Workstation printers
- 3430—new tapes on Model 4/5/7/8
- 5 thru 8—3370s on Model 8



## ECA188

EC841432  
AS REQUIRED  
AVAILABLE  
ORDER FROM  
PLANT OF CONTROL

83-06-15  
SERVICE CODE 33  
83-07  
ROCHESTER  
ROCHESTER

### Purpose

This FB/M supplies a new 3262/5211 printer adapter card 1st position.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548876	Printer #1	B/M2771577
-----	-----	S/38 prior to S/N25901	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771577	0.7	0.7

### Prerequisites

None

### Companion

None

### Concurrent

None

### Detail

To correct intermittent extra carriage skips/spaces during ribbon reversal.

Order this FB/M only if this problem occurs on the system printer.

## ECA189

EC841445  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

83-06-29  
SERVICE CODE 33  
83-08  
ROCHESTER  
ROCHESTER

### Purpose

This FB/M provides a new Work Station Controller card for systems with light pen feature.

### Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202130	Light Pen Adapter 1	B/M2771805
	B/M4202141	Light Pen Adapter 2	B/M2771806
	B/M4202142	Light Pen Adapter 3	B/M2771807
	B/M4202143	Light Pen Adapter 4	B/M2771808
-----	-----	S/38 prior to S/N25781	-----

### Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771805	1.5	1.0
B/M2771806	0.3	0.2
B/M2771807	0.3	0.2
B/M2771808	0.3	0.2

### Prerequisites

None

### Companion

None

### Concurrent

None

### Detail

New WSC card to correct the following problems:

- 52S1/5292 error code 0124 in EREP
- Aid key loop problem using unlock keyword
- Local print key problem

## ECA190

EC841438  
AS REQUIRED  
AVAILABLE  
ORDER FROM  
PLANT OF CONTROL

83-06-29  
SERVICE CODE 33  
83-07  
ROCHESTER  
ROCHESTER

**Purpose**

This FB/M supplies a new 3262/5211 printer adapter card 2nd position.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2546781	Printer #2	B/M4361450
-----	-----	S/38 prior to S/N25901	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M4361450	0.7	0.7

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

To correct intermittent extra carriage skips/spaces during ribbon reversal.

Order this FB/M only if this problem occurs on the system printer.

**ECA191**

EC921785

83-07-27

**Purpose**

This ECA is released for World Trade Use only.

No domestic Field Bill of Material will be shipped.

**ECA192**

EC841313  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
PLANT OF CONTROL

83-07-27  
SERVICE CODE 33  
83-07  
ROCHESTER  
ROCHESTER

**Purpose**

For Finland only. Rework Model 7 T-1 Transformer.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4223349 and B/M4224720	Finland Base Model 7	B/M2771121

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771121		

**Prerequisites**

None

**Companion**

None

**Concurrent**

ECA139, EC840939

**Detail**

This FB/M provides additional insulation on T-1 for 5381s installed in Finland.

No domestic FB/M is required.

**ECA193**

EC841531  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

83-09-07|REV. 83-11-16  
SERVICE CODE 33  
83-10  
ROCHESTER

Obsolete Replaced by ECAs 196, 197 84-01-24

**Purpose**

Update 02A-A2 Board.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202199	4th Work Station Controller Installed (Serials 25658 & 25790 only)	B/M2771897
	B/M4202199	4th Work Station Controller Extended Installed (Serials 23874 & 25255 only)	B/M2771898
	B/M4202199	WSC #3 Adding WSC-E #4 (MES only)	B/M2771885
	B/M4202199	WSC-E #3 Adding WSC-E #4 (MES only)	B/M2771899
		BO Support Docs	B/M2771887
		S/38 prior to S/N26346	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771897	1.0	1.0
B/M2771898	1.0	1.0
B/M2771885	1.2	1.0
B/M2771899	1.2	1.0
B/M2771887	0.0	0.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

FBMs 2771897 and 2771898 correct an unterminated net which affects WSC-E #4 only and will be automatically shipped to affected machines. FB/M2771885 provides this correction on machines already installed with WSC #3 and adding WSC-E #4 by MES. FB/M2771899 provides this correction to machines already installed with WSC-E #3 and adding WSC-E #4 by MES.

FB/Ms 2771885 & 2771899 will be shipped automatically when required by MES only.

ECA194

MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

83-11-18  
SERVICE CODE 33  
83-10  
ROCHESTER

## Purpose

Update Channel MAP 1884.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All			ECA194

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
ECA194	0.2	0.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

Replace page number 19 and 20 due to a printing error 5381 serials 25771 through 26189 only.

ECA195

EC837993  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM

84-01-24  
SERVICE CODE 01  
84-02  
ROCHESTER

## Purpose

Provides Code A inventory diskettes to A/FE and E/ME/A replacement centers.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
989		A/FE or E/ME/A	B/M2771933

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771933	0.0	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This FB/M provides a library copy of microcode for emergency rebuild of the SLV. A/FE and E/ME/A only.

**ECA196**

EC841529	84-01-24
MANDATORY	SERVICE CODE 33
AVAILABLE	84-02
AUTOSHIPPED FROM	ROCHESTER
Obsolete 86-06-16	

**Purpose**

Update 02A-A2 Board.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202199	02A-A2 Board (ROS)	B/M2444940
-----	-----	S/38 prior to S/N26977	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2444940	1.2	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Corrects an unterminated net which affects WSC-E No. 4 or Comm SS3. Shipment will be to machines with WSC No. 3 already installed and adding WSC-E No. 4 or Comm SS3 by MES.

**ECA197**

ECJ41530	84-01-24
MANDATORY	SERVICE CODE 33
AVAILABLE	84-02
AUTOSHIPPED FROM	ROCHESTER
Obsolete Replaced by	ECA222 85-08-28

**Purpose**

Update 02A-A2 Board.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202199	02A-A2 Board (E type)	B/M2444941
-----	-----	S/38 prior to S/N26978	-----

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2444941	1.2	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Corrects an unterminated net which affects WSC-E No. 4 or Comm SS3. Shipment will be to machines with WSC-E No. 3 already installed and adding WSC-E No. 4 or Comm SS3 by MES.

**ECA198**

EC921797 84-01-24

**Purpose**

This ECA is released for World Trade Use only.

No domestic field Bill of Material will be shipped.

**ECA199**

EC921798 84-01-24

**Purpose**

This ECA is released for World Trade Use only.

No domestic field Bill of Material will be shipped.

**ECA200**

EC921799 84-01-24

**Purpose**

This ECA is released for World Trade Use only.

No domestic field Bill of Material will be shipped.

**ECA201**

EC841583 84-02-20  
MANDATORY SERVICE CODE 33  
AVAILABLE 84-08  
AUTOSHIPPED FROM ROCHESTER  
Obsolete 86-06 16

**Purpose**

Update Power Cable.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548 31	Frame 02A Gate	B/M2771975
		S/38 prior to S/N27570	

**Estimated Installation Time**

B/M Installed	Service Hours	System Hours
B/M2771975	0.5	0.4

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Updates power cable on 02A gate for Comm SS3. This EC is shipped only when required by an MES.

**ECA202**

EC841548 84-02-20  
MANDATORY SERVICE CODE 33  
AVAILABLE 84-08  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced by ECA219 85-08-28

**Purpose**

Update 02A-A1.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2772635	02A-A1 Board	B/M2444971
		S/38 prior to S/N27570	

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M2444971	1.2	1.0

**Prerequisites**

ECA201, EC841583

**Companion**

None

**Concurrent**

None

**Detail**

Updates 02A-A1 board for Comm SS3. This EC is shipped only when required by an MES.

**ECA203**

EC841583  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

84-02-20|REV. 85-07-31  
 SERVICE CODE 33  
 85-02  
 ROCHESTER

**Purpose**

Update 01A-A2 board.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202198 B/M2548848	01A-A2 Board (E-type) and adding 01A-B2 Board	E/M2444949
All	B/M4202198 B/M4224601	01A-A2 Board (E-type) and adding 3430 Attachment S/38 prior to S/N27010	B/M2444950

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M2444949	0.6	0.5
B/M2444950	1.2	1.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Deletes line on 01A-A2 board. FB/M2444949 applies if adding 01A-B2 board with 01A-A2 board previously installed. FB/M2444950 applies if adding 3430 attachment with 01A-A2 and 01A-B2 boards previously installed. This EC will be shipped only when required by an MES.

**ECA204**

EC929624A

84-04-18

**Purpose**

This ECA is released for World Trade Use only.

No domestic field Bill of Material will be shipped.

**ECA205**

EC840995  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete Replaced by ECA220 85-08-28

84-08-25  
 SERVICE CODE 33  
 84-08  
 ROCHESTER

**Purpose**

Periodic 13 MLM Update.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548923	Basic MLM	B/M2771959
All	B/M4202149	3430	B/M2771960
3,4,5A	B/M4202020	w/o 4224648	B/M2771961
6,7,8	B/M4202035		B/M2771962
5B	B/M4224648		B/M2771963
All	B/M2549962	Communications	B/M2771964
All	B/M2548815	50 Hz	B/M2445708
All	B/M2548746	60 Hz	B/M2445707
All	B/M2548754 and B/M4202195	WSC-E	B/M2445723

All	B/M4223259	3370	B/M2445724
		S/38 prior to S/N27570	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771959	0.2	0.0
B/M2771960	0.2	0.0
B/M2771961	0.2	0.0
B/M2771962	0.2	0.0
B/M2771963	0.2	0.0
B/M2771964	0.2	0.0
B/M2445706	0.2	0.0
B/M2445707	0.2	0.0
B/M2445723	0.2	0.0
B/M2445724	0.2	0.0

## Prerequisites

ECA182, EC840994

## Companion

ECA206, EC837995

## Concurrent

None

## Detail

These FB/Ms provide supporting documentation for Microcode Periodic 13 (CPF Release 6.0).

## ECA206

EC837995 84-06-25/REV. 85-04-24  
MANDATORY SERVICE CODE 33  
AVAILABLE 84-06  
AUTOSHIPPED FROM ROCHESTER  
Obsolete Replaced by ECA223 85-08-28

## Purpose

Periodic 13 microcode update, CPF Release 6.0.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M4202009 or B/M4202032 or	Base Microcode	B/M2771937

90-06-19

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	B/M2772643		
967		BO Diskettes	B/M2771938
		S/38 prior to S/N27570	

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2771937	2.0	1.8
B/M2771938	0.0	0.0

## Prerequisites

ECA182, EC840994  
ECA187, EC837992

## Companion

ECA205, EC840895

## Concurrent

None

## Detail

This FB/M provides microcode to support:

- Improved Serviceability SLV (This provides a master SLV to each service representative. MESs SHIPPED AFTER JUNE 1984 WILL NOT CONTAIN MICROCODE).
- Hardware Data Compression for 3430 Attachment.
- Communications Subsystem No. 3 (Lines 9-12).
- 5294 Controller.
- 3270 Device Emulation (SDLC).

Date Released	Inventory Diskette EC Level	ECA
84-06	841655	206
84-07	841687	208
84-12	841731	214
85-03	841763	216

## ECA207

EC841483

84-06-25

## Purpose

This ECA is released for World Trade Use only.

No domestic field Bill of Material will be shipped.

**ECA208**

EC841687  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete Replaced by ECA214 84-12-10

84-08-06  
 SERVICE CODE 33  
 84-07  
 ROCHESTER

**Purpose**

Release a new Periodic 13 inventory diskette.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
967		BU Diskette	B/M2444925
		S/38 prior to S/N27709	

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M2444925	0.0	0.0

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

This B/M provides a new Periodic 13 inventory diskette at EC841687 to replace the current Periodic 13 inventory diskette at EC841655.

**Purpose**

Replace 62PC disk enclosure on specified 5381 machines.

**Machines, Features or Devices Affected**

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All		62PC Attachment	B/M2445942

**Estimated Installation Time**

<b>B/M</b>	<b>Service</b>	<b>System</b>
<b>Installed</b>	<b>Hours</b>	<b>Hours</b>
B/M2445942	1.3	1.3

**Prerequisites**

None

**Companion**

None

**Concurrent**

None

**Detail**

Replace the 62PC disk enclosure on the below specified serial numbers due to a possible quality problem.

Serial numbers:

20333	25801	27767
20719	26172	27770
21435	27713	27772
22683	27717-18	27775
23128	27726	27777-80
23447	27733	27783
24926	27736-37	27786-88
25053	27741-42	27791
25151	27745-57	27794
25278	27760-63	

**ECA209**

EC841698  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

84-10-15  
 SERVICE CODE 33  
 84-09

**ECA210**

EC841688  
 MANDATORY  
 AVAILABLE  
 AUTOSHIPPED FROM  
 Obsolete 86-06-16

84-11-26  
 SERVICE CODE 33  
 84-12  
 ROCHESTER



## Purpose

Update branch office support documentation.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
-----	-----	BO Documentation S/38 prior to S/N28314	B/M2444927 -----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2444927	0.0	0.0

## Prerequisites

None

## Companion

None

## Concurrent

None

## Detail

This FB/M provides initial support for 5382.

## Notes

EC841598 is the corresponding factory only engineering change.

## ECA211

EC837997  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete Replaced by ECA214 84-12-10

84-11-26  
SERVICE CODE 33  
84-12  
ROCHESTER

## Purpose

Microcode update to support 5382.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	-----	BO Diskettes S/38 prior to S/N28314	B/M2445820 -----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2445820	0.0	0.0

## ECA212

EC841838  
MANDATORY  
AVAILABLE  
AUTOSHIPPED FROM  
Obsolete 86-06-16

84-12-10|REV. 85-07-31  
SERVICE CODE 33  
85-02  
ROCHESTER

## Purpose

Update 01A-B2 board.

## Machines, Features or Devices Affected

Type, Model, Stage	With B/M	Machines Affected and/or Feat/Device Description	B/M to be Installed
All	B/M2548848 B/M4224601	Board 01A-B2 w/o ECA154, EC841226 and Adding 3430 Attachment	B/M2445876 -----
All	B/M2548848 B/M4202110	Board 01A-B2 and Adding X.25 Attachment  5381/5382 Prior to S/N28778. Factory-Built 5382 Prior to S/N40031	B/M2445806 -----

## Estimated Installation Time

B/M Installed	Service Hours	System Hours
B/M2445876	2.0	1.8
B/M2445806	2.0	1.8